ARI Research Note 88-88

Development of LHX MANPRINT Issues

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This research note documents one stage in the incorporation of Manpower and Personnel Integration (MANPRINT) into the early stages of the acquisition of a major weapon system. It describes a process of identifying and analyzing the human factors, health hazard, and training issues associated with the Light Helicopter Family (LHX). The RN also describes the LHX MANPRINT Data Base Management System -- an automated data base whose structure and operation should be generally useful in any acquisition of materiel.

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18. Subject Terms (continued)

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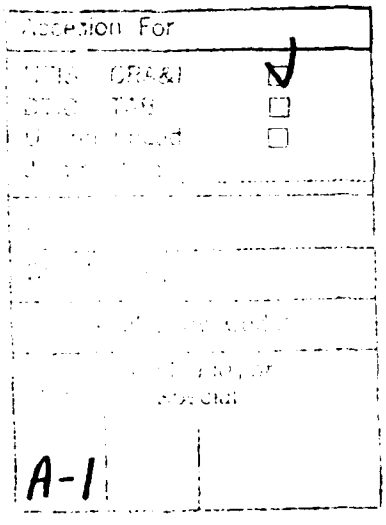
FOREWORD

The goal of the Army's Manpower and Personnel Integration (MANPRINT) program is to enhance the field effectiveness of newly deployed weapons by integrating, throughout the materiel acquisition process, the information and actions that affect soldier performance. This includes manpower levels, personnel requirements, training requirements, human factors engineering, system safety, and health hazards. The Manned Systems Group of the Army Research Institute for the Behavioral and Social Sciences (ARI) performs research and development in areas that support the MANPRINT process.

This report documents one step in the Army's first effort to apply MANPRINT in the early stages of a major weapon acquisition. The report describes a process of identifying and analyzing the human factors, health hazard, and training issues associated with the Light Helicopter Family (LHX) up to and including the Full Scale Development Request for Proposal. The manpower, personnel and system safety issues for LHX were investigated under a separate effort and are documented in ARI Working Paper MSG 88-02, LHX MANPRINT Integration. The report also describes an automated data base, the structure and operation of which are generally useful in any materiel acquisition.



DEVELOPMENT OF LHX MANPRINT ISSUES

EXECUTIVE SUMMARY

Requirement:

To facilitate the Manpower and Personnel Integration (MANPRINT) process in the Light Helicopter Family (LHX) acquisition by identifying and analyzing the status of human factors engineering, health hazard, and training issues relevant to the LHX.

Procedure:

The MANPRINT issues associated with the LHX were identified from LHX program documents and analyses. The work was performed within the context of the actual LHX acquisition process and focused on human factors engineering, health hazard, and training issues. (The manpower, personnel and system safety issues for LHX were investigated under a separate effort and are documented in ARI Working Paper MSG 88-02, LHX MANPRINT Integration.) The period of performance coincided with the period of preparation of the Full Scale Development Request for Proposal. The "controls" were embodied in the efforts to consistently and uniformly apply the elements of analysis to the changing stream of relevant real world events. The source or sources of issues were documented, along with the potential impact on system performance. The status of issues was analyzed in terms of proposed solution, risk, and timeliness of solution. An automated data base was developed to support the analysis process.

Findings:

Issues were identified in five of the six MANPRINT domains; manpower, personnel, training, human factors engineering, and health hazards. (Other analysts might have categorized some of the health hazard issues as system safety issues. Faced with ambiguity, we elected to include issues in the analysis rather than exclude them. Likewise, issues observed in the manpower and personnel domains were included although they were beyond the main focus of this effort.) The issues are not all equally difficult to solve or equally important to the success of the LHX. In terms of technological risk, issues vary from high to low. The paramount issue is the viability of the concept of single pilot operation of the scout/attack version of the LHX. Other important issues involve the training system, personnel skills, and the reduction of maintenance manpower. Without exception, the major MANPRINT issues covered by this report are being addressed in the LHX system development process.

Utilization of Findings:

The report presents a consolidated synopsis of issues in three of the MANPRINT domains pertinent to the LHX acquisition as of late 1986. The information points to areas for action and may assist decision makers in setting priorities and defining the nature of the requisite action.

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OVERVIEW

Operational Problem

The Army's initial attempt to incorporate the new Manpower and Personnel Integration (MANPRINT) program (Army Regulation 602-2, in preparation) into the early stages of a major weapon acquisition program occurred with the Light Helicopter Family (LHX). Methods and procedures for integrating the MANPRINT domains and for incorporating MANPRINT into the materiel acquisition process were in the formative stages and as yet were mostly untried and unrefined. One aspect of the problem was the identification and definition of those aspects of the LHX development which might constitute significant MANPRINT issues.

Research Objective

The objective of this work was to identify and define LHX MANPRINT issues in the human factors engineering, health hazard, and training domains at a level of specificity and detail suitable for management attention and for the tracking of progress toward solution of those issues throughout subsequent stages of materiel acquisition and system development. The manpower, personnel and system safety issues for LHX were investigated under a separate effort and are documented in ARI Working Paper MSG 88-02.

Scope

In terms of the nature and level of issues, the scope of the effort was defined as those issues appropriate for attention at Headquarters, Department of the Army level. In analyzing the status of each issue, its impact on the LHX system, nature of proposed solution, timing, technological risk, type of activity affected, and principal MANPRINT domains were considered. The source material was the unclassified LHX program documentation and the reports of various LHX program analyses available through Fall 1986.

Approach

Relevant LHX documentation was reviewed in detail. Explicit and implicit MANPRINT issues, both real and potential, were identified, defined, and condensed into a short statement and catalogued in an automated data base along with a source reference and available information on origin and status. The analysis consisted of adding information about the issue obtained from these documents, adding corroborative sources, and subjectively categorizing the issue along several dimensions based on the relevant information accumulated for each specific issue. Results of the analysis were then applied by U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) to the LHX System MANPRINT Management Plan (SMMP) and the Human Factors Engineering Analysis; they are presented in this report.

Light Helicopter Family (LHX) Description

When developed, the LHX family of light, fast, highly maneuverable aerial vehicles will be capable of conducting nap-of-the-earth operations continuously throughout the entire battlefield against a sophisticated threat which has the capability to use nuclear, biological, and chemical (NBC) and directed energy weapons. The LHX will have an integrated and automated cockpit, worldwide navigation capability, and secure, electromagnetic pulse (EMP) and electromagnetic interference (EMI) hardened avionics. The LHX will be self-deployable to Europe and rapidly transportable by inter-theater tactical air transport. The capabilities of the LHX will expand Army aviation's ability to perform its missions continuously in adverse weather and over all terrain. The capabilities include air-to-air combat, deep attack, continuous day and night operations on an integrated battlefield, more rapid tailoring of units to meet the demands of the fluid battlefield, and increased ability to remain in the battle. The LHX will be fielded in units that have combat, combat support (CS), and combat service support (CSS) missions. The LHX will replace the aging fleets of AH-1, OH-58, and UH-1 helicopters.

Two versions of the LHX are planned: the LHX scout/attack (SCAT) and the LHX utility (LHX-U). The SCAT will be rapidly convertible for various missions through the installation of "mission kits" consisting of preselected equipment essential to the specific mission. Capabilities planned for the SCAT include automatic acquisition of multiple targets, target prioritization, and transmission of target information to other aircraft for attack purposes. The LHX-U capabilities include internal and external cargo transport, tactical team transport, command and control, and an air-to-air combat capability.

LHX Mission Capabilities

The LHX will enhance Army capabilities in the following mission areas:

Command and Control (C^2): support the C^2 effort by greatly enhancing the commanders' ability to see the battlefield, collect and disseminate information, communicate with all echelons of command, and control combat forces.

Close Combat: improve the Army commanders' capability to maneuver, acquire and destroy targets, and control the battle.

Fire Support: in the field artillery aerial observation (FAAO) role, provide the commander the capability to fire-for-effect with the first round.

Air Defense: add to the total force air defense effort by destroying enemy aircraft with air-to-air weapons. Additional

capabilities include detection and engagement of enemy air movements and rapid repositioning of lightweight or man-portable air defense assets.

Communication: provide secure airborne retransmission of voice and data communications, transport support systems, emplace automated communications in remote areas, and perform secure courier service.

Intelligence and Electronic Warfare (IEW): supplement the commanders' other IEW systems through detection, location, and identification of enemy units by using LHX surveillance devices or by positioning both attended and unattended ground sensor systems.

Combat Service Support (CSS): improve the capacity to rapidly transport and recover small numbers of personnel and light materiel anywhere on the battlefield.

LHX Maintenance Concept

The maintenance concept for the LHX is consonant with the provisions anticipated for Army aircraft maintenance in the year 1985 and beyond. Both the maintenance system and the reliability, availability, maintainability, and testability characteristics of the aircraft will be designed to support the future operational requirements of the Army. Although the maintenance force structure supporting Army aviation in the 1990s will remain a three-level system, the LHX maintenance concept operating within that force structure will have only two levels, designated as user-level and depot-level maintenance.

Level 1: User Maintenance. User-level maintenance supports a specific weapon system, including unit maintenance, aviation intermediate maintenance, combat maintenance, and battle damage assessment and repair. This maintenance contributes to aircraft readiness and does not support the supply system.

Level 2: Depot Maintenance. Depot-level maintenance refers to all maintenance performed in support of the supply system including component rebuilding, repair, and calibration.

The LHX maintenance concept is intended to drive the design of the LHX toward optimum maintainability and to reduce maintenance manpower requirements. Modules and replaceable units will be discarded or evacuated, as appropriate. Maximum use will be made of on-board troubleshooting and built-in tests to assess current conditions and detect trends. The LHX will utilize independent, ground-based automatic test equipment (ATE), if required. However, emphasis will be placed on eliminating the need for mainframe ATE in the field. Aircraft design should emphasize maintenance with common tools and utilization of special tools will be minimal. The LHX will incorporate on-board flight data recording, test, and diagnostic equipment to facilitate maintenance and rapid return to operationally ready status.

LHX Manpower

The LHX will be designed to reduce the force structure requirement for maintenance personnel. The desired goal is to reduce the complexity and variety of maintenance tasks required to such a degree that all unit level maintenance functions can be performed by no more than three different military occupational specialties (crew chief included). This goal will be accomplished through technological advances and refinements in the man-machine interface. The reduction of manpower requirements will contribute to more cost-effective operations when compared to the aircraft the LHX will replace.

Personnel

Personnel issues will be addressed continuously during the development of the LHX and the number of skills and skill levels for aircrew and maintenance personnel are not to exceed those required for current light helicopter fleet operations. Equipment design emphasis will be placed on simplicity and ease of operation. New warrant officer and enlisted military occupational specialties (MOS) to operate, maintain, and support the LHX are to be held to a minimum.

Training

The LHX training system will meet all operator, maintainer, and supporter training requirements for both Active and Reserve Component personnel. The training system, to include all devices, courseware, and embedded training capabilities in the aircraft, will be developed, tested, and fielded concurrently with the aircraft. Maintenance manuals will be developed for the appropriate reading grade level and all maintenance publications will be user-validated.

Flight training will be conducted at the U.S. Army Aviation Center (USAAVNC). Students will be tracked into either the SCAT or LHX-U. Early phases of initial entry rotary wing (IERW) training may be conducted in a generic LHX training aircraft. The advanced phase of IERW will be in mission-specific LHX training aircraft. Maintenance test pilot training will be conducted at the U.S. Army Aviation Logistics School following aircraft qualification at USAAVNC. Initial maintenance and support training will be conducted by the appropriate Army schools. All new mission profiles and related tasks generated by the LHX will be incorporated into new and distinct soldier's manuals, job books, soldier's guides, skill qualification tests, aircrew training manuals, Army training evaluation programs, and the annual aviator's written examination. A contractor's training course will provide instructor and key personnel training for initial handoff of operator and maintainer skills to Army instructors.

LHX in Army Units

The SCAT will replace the AH-1 and OH-58A/C helicopter in air reconnaissance and attack helicopter units. Beyond the year 2000, the SCAT

version will displace the OH-58D in attack helicopter units equipped with the AH-64 and in the FAAO role. It is planned that air reconnaissance troops and attack helicopter companies will each have SCAT aircraft.

The LHX-U version will replace the OH-58 observation and UH-1 utility helicopter organic to aviation units at echelons above corps, corps, division, and other organizations that have requirements for command, control, and communication aircraft. This replacement will be on a one-for-one basis.

Manpower and Personnel Integration (MANPRINT)

Army Regulation 602-2 describes MANPRINT as a comprehensive management and technical program to improve total system (soldier and equipment) performance by the continuous integration of manpower, personnel, training, human factors engineering, system safety, and health hazard considerations throughout the materiel development and acquisition process. The recent urgent need to resolve the dilemma between the rapidly increasing complexity of military hardware (coupled with an attendant need for trained high-skilled soldiers) which has accompanied the current Army Modernization Program and the anticipated finite limits on the number and quality of soldiers who may be available in the 1990s have moved MANPRINT into the forefront of materiel acquisition planning. Thus, while Army units might possess the most sophisticated and theoretically superior equipment, total performance potential might not be realized unless soldier performance is highly effective. In the past, increased capability achieved with advanced technology was often accompanied by increased soldier task complexity. Materiel design was not always guided by a disciplined process that insisted on putting "the soldier-in-the-loop". Moreover, the design process was often built on the unstated assumption that sufficient numbers of skilled soldiers would always be available to operate, maintain, and support the hardware.

MANPRINT Integration

The key words in the MANPRINT process are "integration" and "throughout materiel development and acquisition...." new equipment training, development of new institutional training programs, basis of issue plans, qualitative and quantitative personnel requirements information, manpower requirement criteria, and MOS determination have long had their place in the fielding of newly developed Army equipment. System safety assessment, health hazard assessment, human factors engineering, and tables of organization and equipment development are also not new to Army system development. What is entirely new about MANPRINT is the emphasis on integration of these activities. First, the MANPRINT program integrates the activities in the six existing domains of manpower, personnel, training, human factors engineering, system safety, and health hazards. It seeks not only integration among them but has the broader objective of integrating these with relevant design activities in traditional areas of operation, maintenance, logistics, and support. In so doing, the MANPRINT process focuses concern not only on the individual soldier but also on the units which will employ, maintain, and support new materiel (Figure 1).

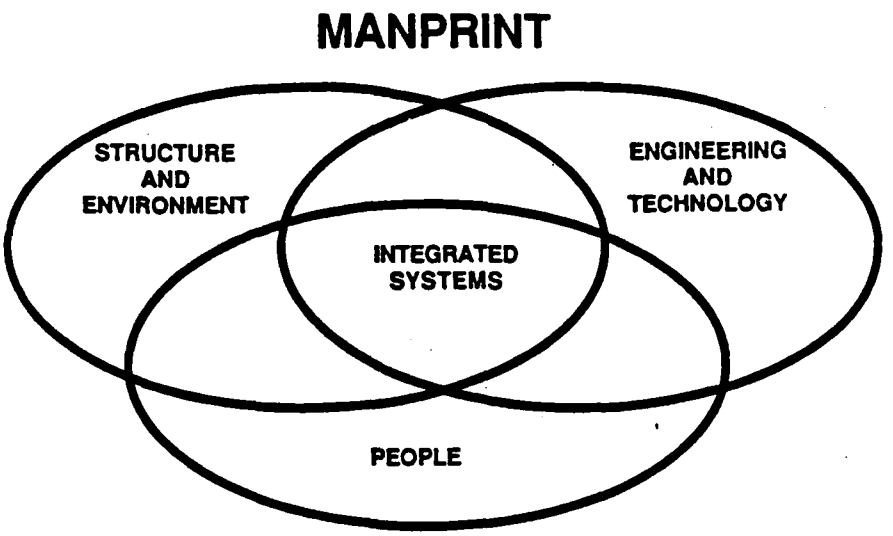

Figure 1. Manpower and Personnel Integration (MANPRINT).

The second new element in the MANPRINT program is the insistence that technical information from the MANPRINT domains should play a prominent role in the decisions which determine the design characteristics of new materiel from concept formulation phase through the deployment phase. Thus, MANPRINT contributes to total system effectiveness through improved: soldier performance, manpower and personnel utilization, and unit effectiveness.

DEVELOPING MANPRINT ISSUES

As might be anticipated, the newness of MANPRINT in the materiel acquisition process led to frequent modifications in the approach, scope, and products of this effort. While these modifications, inevitably, helped mold products of the work, they were always aimed at enhancing the utility of those products to the LHX MANPRINT program. Only the final approach used in this task is described here. The approach is depicted in Figure 2.

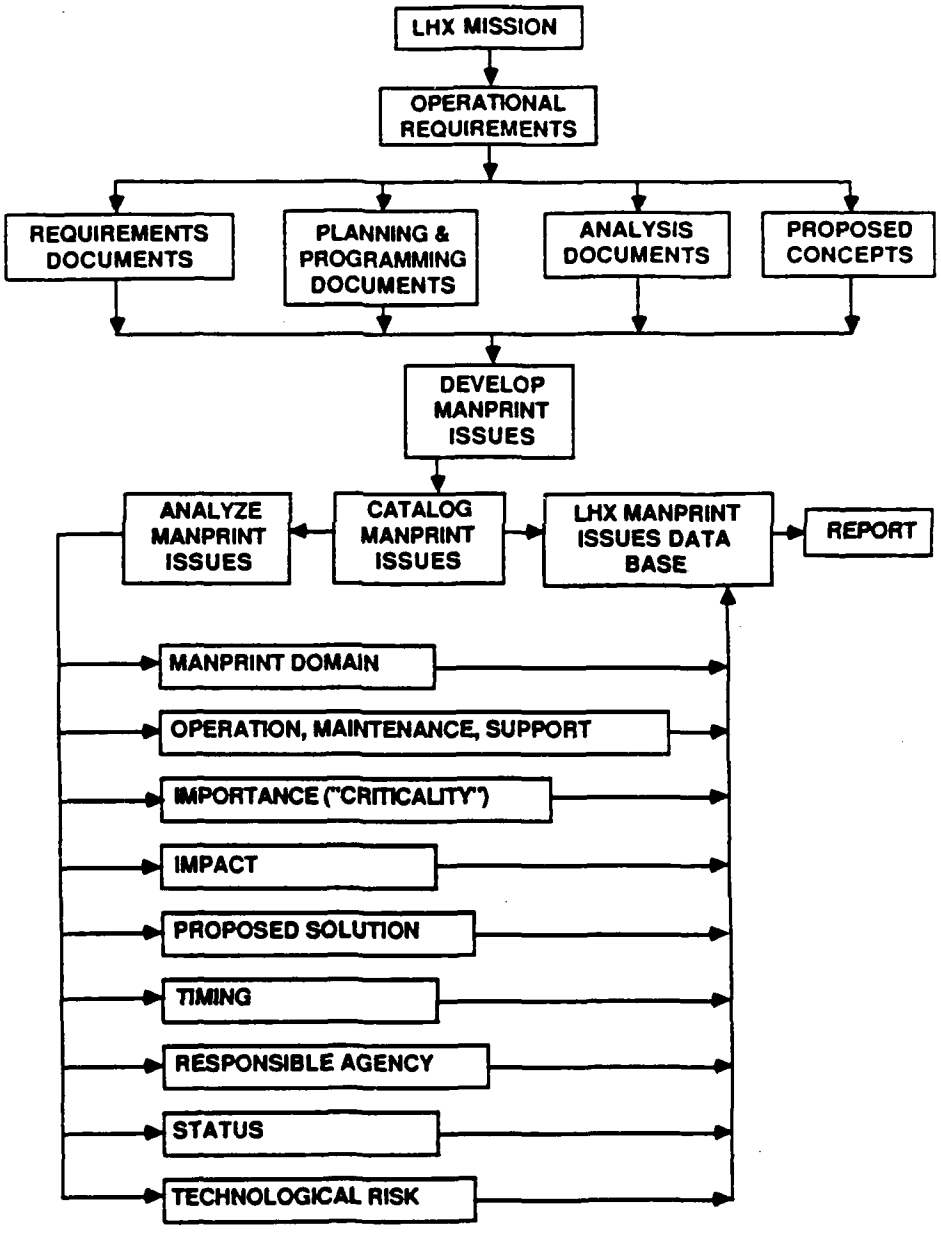

Figure 2. Scheme for developing LHX MANPRINT issues.

Procedure

Unclassified LHX documentation assembled by ARI was examined for potential relevance to the MANPRINT area. The contractor assisted in identifying and locating appropriate documents. Document acquisition was through ARI. The contractor reproduced relevant documents for review and analysis. Based on subject matter, each document was categorized as a requirement document, a plans/programs document, or an analysis document, entered into an automated data base (fully described in Appendix A of this report) and assigned a unique identification number (IDNO). Within the data base, each document was cataloged by title, author, document location (i.e., ARI LHX file folder number), originating organization, date, media type (to identify non-printed items) status (i.e., draft versus final material), security classification (although set up to designate classified material, in actual use only Unclassified and For Official Use Only (FOUO) documents were cataloged), and document type (i.e., report, briefing, letter, plan, etc.). An analyst examined each cataloged item for timeliness, detail, specificity, new or unique information, and extent of overlap with, or duplication of, documents previously received. Most documents were then given a detailed reading (see references and bibliography). Omission of specific items at this stage was usually based on the existence of more detailed or more recent information in another document, e.g., only the most recent HARDMAN (Hardware versus Manpower) analysis of the LHX was reviewed.

The analyst read the text for explicit and implicit MANPRINT issues. This required the constant exercise of judgement in comparing stated and potential issues against a rather imprecise criterion. Initially, the criterion was, "The issue is of such significance that it should be presented to the Army Systems Acquisition Review Council (ASARC)". A strict interpretation would have led to a few issues stated in terms so broad as to offer little help in dealing with those issues. (The LHX System MANPRINT Management Plan eventually settled on eight "Key Issues".) The criterion used was. "The issue, if unsolved, will seriously impede attainment of a major capability or objective projected for the LHX program." "Seriously impede" could then be evaluated in terms such as technological difficulty, manpower implications, number of personnel likely to be affected, or some other indication of the extent of the potential impact on the overall success of LHX. This led to issues that could be analyzed in useful terms and eliminated the host of specific technical MANPRINT questions that are easily perceived in perusing the characteristics and capabilities desired of the LHX. Thus, the issues addressed in this report are those pertaining to major subsystems or major elements of the LHX program. Nevertheless, in judging whether or not to define and include an issue it was deemed more desirable to include it for visibility rather than have it unexpectedly arise later in LHX development. From the text, the analyst extracted or formulated a succinct issue statement or question. Variants of an issue and discussion or analysis of these might occur in several different sources. Thus, the distillation and analysis of information was an iterative process. The text usually discussed the impact upon the LHX of failure to solve the issue. If it did not, the analyst provided an impact statement. A similar treatment occurred with proposed solutions to an issue, except that analysts formulated proposed solutions only in their areas of expertise. Therefore, not all issues have proposed solutions.

Each issue was categorized according to its significance for a particular type of activity, i.e., operation (O), maintenance (M), or support (S). Each issue also was categorized according to the MANPRINT domain in which it had major impact. Predictably, many issues affected more than one type of activity and more than one MANPRINT domain. Thus, an issue may appear several times in the automated data base. The analyst exercised judgement in making multiple entries of an issue in order to maintain the informational utility of the categorization and precluded having all issues appear in all categories.

To indicate the extent to which solution of an issue seemed of critical importance to overall, multi-mission success of the LHX, a "Criticality Score" was assigned to each issue using the following criteria:

E = Essential - solution of the issue is required for a successful LHX.

H = High - highly important issue. Failure to resolve the issue means major degradation in LHX mission performance.

M = Medium - moderately important issue. Failure to resolve the issue means serious delay in the program, potential inefficiencies of major significance, or minor degradation in mission performance.

L = Low - issues of low (but not zero) importance to the LHX program. Failure to resolve the issue can result in program delay, inefficient operations, or degradation of training, maintenance, or support services.

Although independent assessment of technological risk was beyond the scope of this effort, source documents were scrutinized for risk assessments made by others. Where available, assessments and their source were recorded for specific issues. The agency that was, or should be, responsible for solution of each issue and the event within the materiel acquisition process by which a solution was needed was ascertained and recorded. Finally, the summary status of issue resolution was determined and recorded as:

Res. = Resolved - meaning that a decision has been made or action taken that answers the question(s) raised by the issue. (Resolution of an issue is entirely separate from the impact of an issue. A resolved issue may have profound consequences for maintainers, operators, or support personnel or for the several MANPRINT domains.)

Pend. = Pending - meaning that an Army agency acknowledges "ownership" of the issue and that it is, or will be, addressed in a timely manner.

Unres. = Unresolved - denotes that a path to the solution has not been documented or that ownership is not clearly established.

Unk. = Unknown - denotes that there was no information upon which to judge the status of the issue. This category applied mostly to issues raised by other than the "owner" of the issue.

As each issue was analyzed, the information described above was entered into the automated data base, together with a complete reference to the source documentation. (Sources referenced in the automated data base as well as those referenced in the report are included in the reference section of the report.) Cross-referencing of issues as derived by Allen Corporation with the critical questions in the LHX System MANPRINT Management Plan (June 1986) was subsequently performed to enhance the utility of the results.

Results

A total of 101 issues was identified, defined, and analyzed. Of these, 42 represented multiple entries, leaving 59 unique issues. Of the 101 issues, 96 were human factors, health hazards, or training issues. Issues for which solution was designated as "Essential" to LHX success are presented in Table 1. Table 1 is a data base print-out, one of several formats routinely available within the automated system. Table 1 is designed to illustrate a portion of the data base as well as to highlight the "Essential" issues. Details on all issues are presented in the automated data base listings contained in Appendix A of the report. Explanations of the column headings on the print-out in Table 1 follow:

SMMP Critical Question Number - a cross reference to the specific critical question(s) in the LHX SMMP with which the "Allen Derived Issue" (Fourth Column) is associated. For data entry purposes, question numbers containing less than three digits were converted to three digits numbers, e.g., 1.1 was entered as 1.01 whereas 1.10 was unaltered and entered as 1.10. The letter "R" following some numbers denotes new critical questions recommended by the contractor for addition to the SMMP.

Oper = 1, Main = 2, Supt = 3 - type of activity affected by the issue. Only the number is entered in the column: Operation = 1, Maintenance = 2, Support = 3.

Critical Question - the Critical Question, if there is one, in the LHX SMMP that corresponds to the Allen Derived Issue.

Allen Derived Issue - LHX MANPRINT issue statement or questions adopted by the analysts.

Documentation Supporting Issue Selection - an abbreviated reference to the source document that best makes the case for an issue. The number in this column uniquely identifies the source within the document data base where complete reference information is given.

Responsible Agency - principal Army agency having cognizance over the subject matter of the issue.

When Resolved - event or phase within the LHX program development schedule at which time resolution of the issue is needed.

Source Document IDNO - the unique identification number (IDNO) under which the source is listed in the document data base. The entry may be for the same source as that in column five or for a corroborative source. Letter use is:

A = Analysis Document
P = Plans or Program Management Documents
R = Requirements Documents

Paragraph or Page in Source Document - detailed reference to location within the source document of information on the issue. The Source Document may be the same document supporting issue selection or it may be a corroborative source.

Criticality Score - significance to the achievement of LHX mission objectives of resolving the issue. E = Essential, H = High, M = Medium, L = Low.

MANPRINT Domain - the MANPRINT domain in which the issue has major impact. HF = Human Factors Engineering, HH = Health Hazards, MPWR = Manpower, PERS = Personnel, SS = System Safety, TNG = Training.

Source of Solution - page reference and identification number (IDNO) of document discussing proposed solution(s) to the issue.

Risk - level of technological risk (H = High, M = Medium, L = Low) as estimated in source indicated by document identification number, page, and paragraph.

Status - an abbreviation indicating the status of issue resolution. PEND - Pending, RES = Resolved, UNRES = Unresolved, UNK = Unknown.

Table 1

LHX MANPRINT SMMP Critical Question Report

SMMP CRITICAL QUESTION NUMBER	OPER=1 MAIN=2 SUPT=3	CRITICAL QUESTION	ALLEN DERIVED ISSUE	DOCUMENTATION SUPPORTING ISSUE SELECTION
	1		CAN A PILOT SUCCESSFULLY ENGAGE OTHER HELICOPTERS IN AIR TO AIR COMBAT WHILE FLYING THE A/C?	R1001 O&O PLAN
	1		VISUAL DISPLAY PARAMETERS MUST FALL WITHIN ACCEPTABLE OPERATIONAL LIMITS.	A1075, HH ISSUES PAGE 18
1.0	1	IS SINGLE PILOT OPERABILITY FEASIBLE?	CAN A SINGLE PILOT OPERATE THE LHX IN THE GIVEN OPERATIONAL MODE SUMMARY AND MISSION PROFILES?	R1007 GUIDANCE LETTER, LHX MILESTONE I/II, DECISION REVIEW BY ASARC.DAMA-RA 21 NOV 85 ENCL 6,ENCL 8.: R1001 O&O "THE LHX OPERATIONAL MODE SUMMARY IN ANNEX A/B..
1.01	1	IS THE WIDE FIELD OF VIEW DISPLAY TECHNOLOGY MATURE TO SUPPORT LSD FSD?	CAN AN EFFECTIVE AND ACCEPTABLE HELMET MOUNTED DISPLAY BE DEVELOPED FOR LHX?	A1083, HFEA 1-1/17/86 (FOUO)
1.09	1	IS THE SINGLE PIOT ABLE TO EFFECTIVELY HANDLE ALL EMERGENCY PROCEDURES AND ASSOCIATED ACTIONS?	DESIGN OF LHX NEEDS TO ASSURE THAT ALL EMERGENCY PROCEDURES CAN BE PERFORMED BY A SINGLE PILOT.	A1083, HFEA 20-1/17/86A (FOUO)

Table 1 (continued)

LHX MANPRINT SMMP Critical Question Report

RESPONSIBLE AGENCY	WHEN RESOLVED	SOURCE DOCUMENT IDNO	PAGE/PARA IN SOURCE DOCUMENT	CRITICALITY SCORE	SOURCE OF SOLU'N	RISK	MANPRINT DOMAIN	STATUS
PM/TRADOC	OT II	R1001	III OPERATIONAL PLAN, PAR 2 "THESE CAPABILITIES INCLUDE AIR-TO-AIR COMBAT..." III, PAR 4.d. "THE DESTRUCTION OF ENEMY AIRCRAFT WITH AIR-TO-AIR WEAPONS IS THE LHX'S PRIMARY CONTRIBUTION TO THE TOTAL FORCE AIR DEFENSE EFFORT."	E			HF	PEND. RFP
PM	FSD	A1075	PAGE 18	E			HF	PEND. RFP
PM	OT II	R1002	PAR 5, ESSENTIAL CHARACTERISTICS a(3) AND ANNEX B TO LOA, AND PAR 4 OF O&O (R1001) GUIDANCE LETTER, LHX MILESTONE I/II, DECISION REVIEW BY ASARC. DAMA-RA 21 NOV 85 (IDNO R1007) ENCL 6, ENCL 8.	E		H A1003 P.R-67 PAR C P.R-39 PAR 2(i)	HF	PEND. RFP
PM	FSD	A1083	P1 (FOUO)	E	A1083 HFEA P.1	L A1081 P.8 M/H A1003 P.R-60, PAR 2	HF	PEND. RFP
PM	PRIOR TO FSD	A1083	P20 (FOUO)	E	A1083 HFEA P.20		HF	PEND.

Table 1 (continued)

LHX MANPRINT SMMP Critical Question Report

SMMP CRITICAL QUESTION NUMBER	OPER=1 MAIN=2 SUPT=3	CRITICAL QUESTION	ALLEN DERIVED ISSUE	DOCUMENTATION SUPPORTING ISSUE SELECTION
1.10/1.11/1.14/7.11/7.12	1	CAN A SINGLE PILOT COMPLETE THE MISSION, GIVEN SINGLE POINT FAILURES?	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	A1083, HFEA 22-1/17/86 (FOUO)
1.11/1.14/7.11/7.12	1	CAN A SINGLE PILOT REACT TO CHANGES IN THE MISSION?	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	A1083, HFEA 22-1/17/86 (FOUO)
1.12	1	CAN THE AUTOMATIC TARGET ACQUISITION SYSTEM OPERATE QUICKLY AND ACCURATELY ENOUGH TO ALLOW THE SINGLE PILOT TO ACCOMPLISH THE MISSION AND HAVE ACCEPTABLE SURVIVABILITY?	CAN THE TARGET ACQUISITION PROCESS BE SUCCESSFULLY AUTOMATED TO ASSURE EFFECTIVE SINGLE CREW MEMBER OPERATIONS?	A1083, HFEA 24-1/17/86A (FOUO)
1.13/1.14/7.12	1	CAN SYSTEM AUTOMATION REDUCE PILOT WORKLOAD TO A POINT THAT WILL ALLOW THE SINGLE PILOT TO ACCOMPLISH THE MISSION AND HAVE ACCEPTABLE SURVIVABILITY?	WHAT SYSTEMS ARE AUTOMATED AND HOW SPECIFIC AUTOMATION ACCOMMODATES SINGLE CREW MEMBER OPERATION HAS NOT BEEN COMPLETELY ASSESSED. HF DESIGN STANDARDS DO NOT FULLY ADDRESS ISSUES AND TRADE OFFS IN AUTOMATION AND COGNITIVE OVERLOAD.	A1083, HFEA 25-1/17/86A (FOUO)
7.14/7.11/7.12	1	WILL SINGLE POINT FAILURES OF THE SYSTEM AUTOMATION INCREASE PILOT WORKLOAD SO AS TO PREVENT MISSION ACCOMPLISHMENT OR REDUCE SURVIVABILITY?	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	A1083, HFEA 22-1/17/86 (FOUO)

Table 1 (continued)

LHX MANPRINT SMMP Critical Question Report

RESPONSIBLE AGENCY	WHEN RESOLVED	SOURCE DOCUMENT IDNO	PAGE/PARA IN SOURCE DOCUMENT	CRITICALITY SCORE	SOURCE OF SOLU'N	RISK	MANPRINT DOMAIN	STATUS
PM	OT II	A1083	P22 (FOUO)	E	A1083 HFEA P.22		HF	PEND. RFP
PM	OT II	A1083	P22 (FOUO)	E	A1083 HFEA P.22		HF	PEND. RFP
PM	FSD	A1083	P24 (FOUO)	E	A1083 HFEA P.24	M/H A1081 P.8 & P.9 H A1003 P.R-56-57, PAR (j)	HF	PEND. RFP
PM	FSD	A1083	P25 (FOUO)	E	A1083 HFEA P.25	M/H A1081 P.8 & P.9 H A1003 P.R-67, PAR C	HF-TNG	PEND. RFP
PM	OT II	A1083	P22 (FOUO)	E	A1083 HFEA P.22		HF	PEND. RFP

Table 1 (continued)

LHX MANPRINT SMMP Critical Question Report

SMMP CRITICAL QUESTION NUMBER	OPER=1 MAIN=2 SUPT=3	CRITICAL QUESTION	ALLEN DERIVED ISSUE	DOCUMENTATION SUPPORTING ISSUE SELECTION
1.15	1	CAN FLIGHT CONTROL AUTOMATION REDUCE WORKLOAD ENOUGH FOR THE SINGLE PILOT TO ACCOMPLISH THE MISSION?	CAN TECHNOLOGY ACCOMPLISH THE AUTOMATIC FLIGHT CONTROL WHICH IS CRITICAL TO SINGLE CREW MEMBER OPERATION?	A1083, HFEA 27-1/17/86 (FOUO)
1.17	1	DOES THE MOUNTING OF SECONDARY SWITCHES AND BUTTONS ON THE SIDE-ARM-CONTOLLER DEGRADE THE PILOT'S PERFORMANCE?	THE HUMAN INTERACTIONS AND WORKLOAD RELATED TO FLYING THE AIRCRAFT WITH A "SIDE-ARM-CONTROLLER" AND CONTROLLING OTHER FUNCTIONS AT THE SAME TIME ARE NOT FULLY ASSESSED.	A1083, HFEA 32-1/17/86 (FOUO)
1.18/7.08	1	CAN THE NIGHT VISION PILOTAGE SYSTEM ALLOW A SINGLE PILOT TO FLY NOE AT NIGHT AND IN ADVERSE WEATHER TO ACCOMPLISH THE MISSION WITH AN ACCEPTABLE LEVEL OF SAFETY?	THE SYSTEM FOR NAVIGATING NOE AT NIGHT AND IN ADVERSE WEATHER CONDITIONS WHICH REQUIRES A WIDE FIELD OF VIEW WITH SUITABLE SENSITIVITY AND RESOLUTION, IS A HIGH RISK DEVELOPMENT.	A1083, HFEA 37-1/17/86A (FOUO)
5.02	1	CAN THE LIGHTING REQUIREMENTS OF THE COCKPIT SYSTEMS (NIGHT VISION DEVICES, PANEL AND HELMET DISPLAYS, LASER AND FLASHBLINDNESS PROTECTORS) BE RESOLVED AND AN INTEGRATED LIGHTING SYSTEM DEVELOPED THAT DOES NOT INTERFERE WITH THOSE SYSTEMS OPERATION?	AN INTEGRATED APPROACH TO CREW STATION AND DISPLAY LIGHTING IS NEEDED. LIGHTING FOR MAINTENANCE AND FARP HAS NOT BEEN FULLY EVALUATED.	A1083, HFEA 29-1/17/86A (FOUO)
5.15	1	WHAT IS THE ANTHROPOMETRIC DESCRIPTION OF THE POPULATION OF INDIVIDUALS INVOLVED IN OPERATING, MAINTAINING AND SUPPORTING THE LHX? (I.E., RANGE OF PHYSICAL DIMENSIONS FOR MEN & WOMEN)	ANTHROPOMETRIC REQUIREMENTS HAVE NOT BEEN ESTABLISHED FOR THE LHX.	A1075, MH ISSUES, P-10

Table 1 (continued)

LHX MANPRINT SMMP Critical Question Report

RESPONSIBLE AGENCY	WHEN RESOLVED	SOURCE DOCUMENT IDNO	PAGE/PARA IN SOURCE DOCUMENT	CRITICALITY SCORE	SOURCE OF SOLU'N	RISK	MANPRINT DOMAIN	STATUS
PM	FSD	A1083	P27 (FOUO)	E	A1083 HFEA P.27	H A1081 P.8	HF	PEND. RFP
PM	FSD	A1083	P32 (FOUO)	E	A1083 HFEA P.32	M/H A1003 P.R-VII -17 SUMMARY	HF	RES. HFEA
PM	FSD	A1083	P37 (FOUO)	E	A1083 HFEA P.37	H A1081 P.8	HF	PEND. RFP
PM	FSD	A1083	P52 (FOUO)	E	A1083 HFEA P.29		HF	PEND. RFP
PM	RFP	A1075	HH ISSUES, P-10	E	R1010, RFP P2.3.2 .16.4 AND 3.3.3		HF	RES. RFP

Table 1 (continued)

LHX MANPRINT SMMP Critical Question Report

SMMP CRITICAL QUESTION NUMBER	OPER=1 MAIN=2 SUPT=3	CRITICAL QUESTION	ALLEN DERIVED ISSUE	DOCUMENTATION SUPPORTING ISSUE SELECTION
7.08	1	CAN THE NIGHT VISION PILOTAGE SYSTEM ALLOW A SINGLE PILOT TO FLY NOE AT NIGHT AND IN ADVERSE WEATHER TO ACCOMPLISH THE MISSION WITH AN ACCEPTABLE LEVEL OF SAFETY?	THE SYSTEM FOR NAVIGATING NOE AT NIGHT AND IN ADVERSE WEATHER CONDITIONS WHICH REQUIRES A WIDE FIELD OF VIEW WITH SUITABLE SENSITIVITY AND RESOLUTION, IS A HIGH RISK DEVELOPMENT.	A1083, HFEA 37-1/17/86A (FOUO)
7.11/7.12	1	CAN A SINGLE PILOT COMPLETE THE MISSION, GIVEN SINGLE POINT FAILURES?	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	A1083, HFEA 22-1/17/86 (FOUO)
7.12	1	WILL SINGLE POINT FAILURES OF THE SYSTEM AUTOMATION INCREASE PILOT WORKLOAD SO AS TO PREVENT MISSION ACCOMPLISHMENT OR REDUCE SURVIVABILITY?	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	A1083, HFEA 22-1/17/86 (FOUO)
7.12	1	WILL SINGLE POINT FAILURES OF THE SYSTEM AUTOMATION INCREASE PILOT WORKLOAD SO AS TO PREVENT MISSION ACCOMPLISHMENT OR REDUCE SURVIVABILITY?	WHAT SYSTEMS ARE AUTOMATED AND HOW SPECIFIC AUTOMATION ACCOMMODATES SINGLE CREW MEMBER OPERATION HAS NOT BEEN COMPLETELY ASSESSED. HF DESIGN STANDARDS DO NOT FULLY ADDRESS ISSUES AND TRADE OFFS IN AUTOMATION AND COGNITIVE OVERLOAD.	A1083, HFEA 25-1/17/86A (FOUO)
	1		IS CONTRACTOR DELIVERED TRAINING LIMITED TO PILOT TRAINING? STATEMENT IN ROC IS NOT CLEAR.	R1003 ROC

Table 1 (continued)

LHX MANPRINT SMMP Critical Question Report

RESPONSIBLE AGENCY	WHEN RESOLVED	SOURCE DOCUMENT IDNO	PAGE/PARA IN SOURCE DOCUMENT	CRITICALITY SCORE	SOURCE OF SOLU'N	RISK	MANPRINT DOMAIN	STATUS
PM	FSD	A1083	P37 (FOUO)	E	A1083 HFEA P.37	H A1081 P.8	HF	PEND. RFP
PM	OT II	A1083	P22 (FOUO)	E	A1083 HFEA P.22		HF	PEND. RFP
PM	OT II	A1083	P22 (FOUO)	E	A1083 HFEA P.22		HF	PEND. RFP
PM	FSD	A1083	P25 (FOUO)	E	A1083 HFEA P.25	M/H A1081 P.8 & P.9 H A1003 P.R-67, PAR C	HF-TNG	PEND. RFP
PM/TRADOC	TOA AP U VOL IX, TNG	R1003	ROC PAGE F-2 PARAGRAPH 2,E	H	R1010 RFP P3.5.1		TNG	RES. RFP

Summary

In Tables 2 through 4, the 96 issues in the human factors engineering, health hazards, and training domains are broken out by the various elements of analysis.

Table 2

Number of Issues in the Four Criticality Categories by Status of Solution, MANPRINT Domain, Responsible Army Agency, and Type of Activity Affected

	Criticality Score			
	Essential	High	Medium	Low
Status				
Resolved	2	1	2	2
Pending	17	20	34	10
Unresolved	0	6	2	0
Unknown	0	0	0	0
MANPRINT Domains				
Human Factors	19	21	17	3
Health Hazards	0	2	3	2
Training	0	4	18	7
Responsible Agency				
Project Manager	19	21	25	3
Training & Doctrine Command	0	3	13	7
Logistics Center	0	1	0	0
Aeromedical Research Lab	0	2	0	2
Activity				
Operation	19	20	19	8
Maintenance	0	6	14	3
Support	0	1	5	1

Table 3

Status of Issues by MANPRINT Domains, Responsible Army Agency, and Type of Activity Affected[1]

	Status			
	Resolved	Pending	Unresolved	Unknown
MANPRINT Domains				
Human Factors	4	50	6	0
Health Hazards	1	6	0	0
Training	2	25	2	0
Responsible Agency				
Project Manager	6	58	4	0
Training & Doctrine Command	1	18	4	0
Logistics Center	0	1	0	0
Aeromedical Research Lab.	0	4	0	0
Activity				
Operation	4	54	8	0
Maintenance	2	21	0	0
Support	1	6	0	0

[1]Cell Entries are Numbers of Issues

Table 4

Number of Issues in the MANPRINT Domains by Responsible Army Agency and Type of Activity Affected

	Manprint Domains		
	Human Factors	Health Hazards	Training
Responsible Agency			
Project Manager	50	6	12
Training & Doctrine Command	6	0	17
Logistics Center	1	0	0
Aeromedical Research Lab	3	1	0
Activity			
Operation	45	5	16
Maintenance	12	1	10
Support	3	1	3

PRODUCTS AND DISCUSSION

Products

Several products based on this analytical effort outside of this report were previously delivered in response to bona fide requests. The first of these was an interim report and briefing on the progress and status of this work. This was received by ARI in July 1986. Another product entitled "Comments on The New LHX System MANPRINT Management Plan (SMMP)" consisted of up-dated SMMP pages, one of each of all but four of the critical questions. The added information included complete cross-referencing to appropriate paragraphs in the LHX Request for Proposal (RFP) plus references to pertinent studies and analyses where available. In addition, comments on the SMMP and 13 recommended new critical questions were offered. This product, initially delivered in August 1986, was further updated the following month. A third product was comprised of comments on the June 1986 version of the LHX Human Factors Engineering Analysis (HFEA). This product was supplied in September 1986.

An important product delivered concurrently with this final report consists of the Administrator's Annex and the computer disks for the LHX MANPRINT Issues Data Base Management System (DBMS). The DBMS is documented and described with examples in Appendix A of this report. The three floppy disks delivered to ARI contain the complete data base file and operating software for the DBMS (except, of course, the copywrited dBASEIII as explained in Appendix A). These disks allow those with suitable computer hardware to immediately use the DBMS. Furthermore, the system can be adapted for use with materiel systems other than the LHX.

Discussion

In order to enhance the utility of results, this work was modified to keep pace with LHX MANPRINT activities within the Army. The second draft of the RFP, two versions of the HFEA, and the LHX SMMP (June 1986) were among the important documents that appeared during the period of performance. The use of those documents as source material for this effort and the products of this effort directed, in turn, at the HFEA, and SMMP have reconfirmed issues and brought about a mutual convergence on many issues. That is not to say that the set of issues in the SMMP, the HFEA and this report are identical. There are differences among the sets of issues, the point is that on the major issues these three documents are not widely disparate. (The point may also be taken as a compliment on how well Army agencies are doing their job on this first test of MANPRINT in a major new materiel acquisition.)

There were several important omissions among the documentation available to this effort. The Cost and Operational Effectiveness Analysis (COEA) and especially the Cost and Training Effectiveness Analysis (CTEA) no doubt would have been most useful, especially on issues in the training domain. Training issues presented in this report should be cross-checked with those documents when they become available. Also, information from the Advanced Rotorcraft Technology Integration (ARTI) program, not available to

us, will hopefully contribute to issue solution particularly in the human factors engineering domain. Finally, an updated Target Audience Description (TAD), in all likelihood, would have furnished additional useful information.

As previously noted, many issues affected more than one MANPRINT domain and more than one type of activity (operation, maintenance, support). This analysis has captured those interrelationships through multiple entries in the automated data base. However, this applies only to the human factors engineering, health hazard, and training domains within the scope of this analysis. The interrelations with issues in the other three domains (manpower, personnel and system safety) were not the objective of this effort. The manpower, personnel and system safety issues for LHX were investigated under a separate effort and are documented in ARI Working Paper MSG 88-02, LHX MANPRINT Integration.

Another effect not captured by this, or any other available analysis, has to do with subsequent impact of issue resolution on another system, unit, or agency. An issue raised concerning manpower requirements provides an example. If manpower requirements are underestimated, this will lead to development of an inadequate training base and ultimately to inadequate recruiting. The initial underestimate of manpower requirements may take several years of repair. Further analysis to assess and present these second and third order effects would appear worthwhile.

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APPENDIX A

LHX MANPRINT ISSUES DATA BASE MANAGEMENT SYSTEM

DOCUMENTATION

ISSUES Reported by
SMMP Critical Question Number Sequence

The following listing is shown in critical question number sequence. When there is more than one listing for a given critical qustion number, the issues are arranged so that operator issues appear first, followed by maintainer issues and finally, support issues. Issues are finally arranged by issue type so as to group issues of like type together. This listing was prepared for ease of reference, using the critical question number as the search key. (Some issues did not have a corresponding critical question number. Hence, these issues are listed first.)

LHX MANPRINT SMMP CRITICAL QUESTION REPORT
(ISREP-S)

(INDEXED ON SMMP + TYPECD + ISSUTYP)

SMMP CRITICAL QUESTION NUMBER	OPEN=1 MAIN=2 SUPT=3	CRITICAL QUESTION	ALLEN DERIVED ISSUE	DOCUMENTATION SUPPORTING ISSUE SELECTION	RESPONSIBLE AGENCY	WHEN RESOLVED	SOURCE DOCUMENT IDNO	PAGE/PARA IN SOURCE DOCUMENT	CRITICALITY SCORE	SOURCE OF SOLU'N	RISK	MANPRINT DOMAIN	STATUS
	1		CAN A PILOT SUCCESSFULLY ENGAGE OTHER HELICOPTERS IN AIR TO AIR COMBAT WHILE FLYING THE A/C?	R1001 O&O PLAN	PM/TRADOC	OT II	R1001	III OPERATIONAL PLAN, PAR 2 "THESE CAPABILITIES INCLUDE AIR-TO-AIR COMBAT..." III, PAR 4.d. "THE DESTRUCTION OF ENEMY AIRCRAFT WITH AIR-TO-AIR WEAPONS IS THE LHX'S PRIMARY CONTRIBUTION TO THE TOTAL FORCE AIR DEFENSE EFFORT."	E			HF	PEND. RFP
	1		VISUAL DISPLAY PARAMETERS MUST FALL WITHIN ACCEPTABLE OPERATIONAL LIMITS.	A1075, HH ISSUES PAGE 18	PM	FSD	A1075	PAGE 18	E			HF	PEND. RFP
	1		IS THERE DEGRADATION OF PILOT PERFORMANCE OR ARE THERE LONG-TERM HEALTH IMPLICATIONS STEMMING FROM CURRENT LHX DESIGN?	P1038, LHX TSM-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING	USAARL	OT II	P1038		L			HH	PEND.
	1		WHAT IS THE NUMBER OF SKILLS AND WHAT SKILL LEVELS ARE REQUIRED FOR CURRENT LIGHT FLEET OPERATIONS? LHX SHOULD REDUCE THIS.	R1003 ROC	TRADOC	PRIOR TO OT II	R1003	ROC PAGE 6 PARAGRAPH 9	L			PERSONNEL SKILL	PEND
	1		WHAT IS THE MOST COST EFFECTIVE AND TRAINING EFFECTIVE MIX OF PART-TASK, FULL MISSION SIMULATOR AND OPERATIONAL AIRCRAFT IN INITIAL ENTRY LHX PILOT TRAINING?	P1038, LHX TSM-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING	TRADOC	PUBLICATION OF CTEA	P1038		L			TNG	PEND T OA AP U VOL IX
	1		IS CONTRACTOR DELIVERED TRAINING LIMITED TO PILOT TRAINING? STATEMENT IN ROC IS NOT CLEAR.	R1003 ROC	PM/TRADOC	TOA AP U VOL IX, TNG	R1003	ROC PAGE F-2 PARAGRAPH 2,E	H	R1010 RFP P3.5.1		TNG	RES RFP

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	2		WHAT SYSTEMS ARE AUTOMATED AND HOW SPECIFIC AUTOMATION ACCOMODATES SINGLE CREW MEMBER OPERATION HAS NOT BEEN COMPLETELY ASSESSED. HF DESIGN STANDARDS DO NOT FULLY ADDRESS ISSUES AND TRADE OFFS IN AUTOMATION AND COGNITIVE OVERLOAD.	A1083, HFEA 25-1/17/86A (FOUO)	PM	FSD	A1083	P25 (FOUO)	H	A1083 HFEA P.25	M/H A1081 P.8-5 H A1003 P.R-67 PAR C	HF	PEND. RFP
	2		WHAT IS THE NUMBER OF SKILLS AND WHAT SKILL LEVELS ARE REQUIRED FOR CURRENT LIGHT FLEET OPERATIONS? LHX SHOULD REDUCE THIS.	R1003 ROC	TRADOC	PRIOR TO OT II	R1003	ROC PAGE 6 PARAGRAPH 9	L			PERSONNEL SKILL	PEND.
	3		OPTIMAL PATIENT CARE NOT PROVIDED. NO OXYGEN,COOLING, OR OVER PRESSURE PROVIDED FOR PATIENTS.	A1075, HH ISSUES, P-16	PM	RFP	A1075	HH ISSUES, P-16	M	R1010 RFP P2.3.2 .8.8.2		HH	RES. RFP
	3		WILL THE LARGER LHX FLEET RESULT IN AN INCREASE IN THE TOTAL NUMBER OF PERSONNEL REQUIRED TO OPERATE AND ADMINISTER COMPLEX LHX TRAINING DEVICES?	R1003 ROC	TRADOC	PRIOR TO PRODUCTION	R1003	ROC PAGE F-9 PARAGRAPH 7,C	M			MANPWR INST TNG	UNK
1.0	1	IS SINGLE PILOT OPERABILITY FEASIBLE?	CAN A SINGLE PILOT OPERATE THE LHX IN THE GIVEN OPERATIONAL MODE SUMMARY AND MISSION PROFILES?	R1007 GUIDANCE LETTER, LHX MILESTONE I/II, DECISION REVIEW BY ASARC.DAMA-RA 21 NOV 85 ENCL 6,ENCL 8.: R1001 O&O "THE LHX OPERATIONAL MODE SUMMARY IN ANNEX A/8..	PM	OT II	R1002	PAR 5, ESSENTIAL CHARACTERISTICS a(3) AND ANNEX B TO LOA, AND PAR 4 OF O&O (R1001) GUIDANCE LETTER, LHX MILESTONE I/II, DECISION REVIEW BY ASARC. DAMA-RA 21 NOV 85 (IDNO R1007) ENCL 6, ENCL 8.	E		H A1003 P.R-67 PAR C P R-39 PAR 2(i)	HF	PEND. RFP

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1.01	1	IS THE WIDE FIELD OF VIEW DISPLAY TECHNOLOGY MATURE TO SUPPORT LSD FSD?	CAN AN EFFECTIVE AND ACCEPTABLE HELMET MOUNTED DISPLAY BE DEVELOPED FOR LHX?	A1083, HFEA 1-1/17/86 (FOUO)	PM	FSD	A1083	P1 (FOUO)	E	A1083 HFEA P.1	L A1081 P.8 M/H A1003 P.R-60, PAR 2	HF		PEND. RFP
1.02	1	IS THE INTEGRATED HELMET DEVELOPMENT SUPPORTIVE OF 3.95 LB CRITERIA?	CAN LHX FLIGHT HELMET WITH HMD SIGHTING SYSTEM, AND POSSIBLE NBC, LASER, AND FLASH BLINDNESS PROTECTIVE DEVICES MEET WEIGHT REQUIREMENTS?	A1083, HFEA 2-1/17/86 (FOUO)	PM	FSD	A1083	P2 (FOUO)	H	A1083 HFEA P.2		HF		PEND. RFP
1.03	1	ARE THE SPEECH COMMUNICATIONS AND AUDIO CUES OF SUFFICIENT CLARITY AND INTELIGIBILITY TO PERMIT EFFECTIVE COMMUNICATION?	CLEAR SPEECH COMMUNICATION AND AUDIO CUES ARE CRITICAL FOR SINGLE PILOT OPERATION. IMPROVED SPEECH INTELLIGIBILITY OVER CURRENT AIRCRAFT IS NECESSARY.	A1083, HFEA 12-1/17/86 (FOUO)	PM	FSD	A1083	P12 (FOUO)	H	A1083 HFEA P.12		HF		PEND. RFP
1.04	1	IS SINGLE PILOT OPERABILITY SUPPORTED EFFECTIVELY BY NIGHT VISION GOGGLE OPERATION?	LHX CONCEPTS PROVIDE: (1) HELMET MOUNTED NIGHT VISION SYSTEM OR (2) NIGHT VISION GOGGLES FOR UTILITY PILOT. #1 LEAVES SECOND CREW MEMBER WITH NO N.V. CAPABILITY. WITH #2, CURRENT SAFETY AND OPERATION CONSTRAINTS PRECLUDE SINGLE PILOT NIGHT OPERABILITY.	A1083 HFEA 13-1/17/86 (FOUO)	PM	RFP	A1083	P13 (FOUO)	H			HF		PEND.
1.05	1	IS DIGITAL DATABASE MAP SUPPORTIVE OF SINGLE PILOT OPERATION?	THE RESOLUTION/ACCURACY OF THE DIGITAL DATA BASE FOR THE MAP DISPLAY IS LESS THAN THAT REQUIRED FOR NOE/ADVERSE WEATHER NAVIGATION.	A1083, HFEA 14-1/17/86A (FOUO)	PM	FSD	A1083	P14 (FOUO)	H	A1083 HFEA P.14	L A1081 P.8	HF		PEND.
1.06	1	CAN THE PILOT EFFECTIVELY FLY AND NAVIGATE THE AIRCRAFT WHILE SIMULTANEOUSLY ACQUIRING AND SERVICING TARGETS, ESPECIALLY FOR OFF-AXIS WEAPON EMPLOYMENT?	SCAT COMBAT MISSION INCLUDES A REQUIREMENT FOR THE PILOT TO MAINTAIN FLIGHT CONTROL AND/OR PERFORM A TARGET DESIGNATION TASK WHILE EFFECTIVELY USING THE TURRETED GUN IN AN OFF-AXIS ENGAGEMENT. CAN THESE TAKS BE PERFORMED CONCURRENTLY SUCCESSFULLY?	A1083, HFEA 15-1/17/86A (FOUO)	TRADOC	OT II	A1083	P15 (FOUO)	H	A1083 HFEA P.15	M/H A1003 P.R-27, PAR C	HF		PEND. RFP

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1.07	1	ARE VOICE RECOGNITION SYSTEMS OF SUFFICIENT MATURITY TO PERMIT THEIR USE IN THE LHX?	VOICE RECOGNITION SYSTEMS ARE NECESSARY TO REDUCE PILOT WORKLOAD. TECHNOLOGY DOES NOT APPEAR SUFFICIENTLY MATURE TO MEET THE REQUIREMENT UNDER COMBAT CONDITIONS.	A1083, HFEA 18-1/17/86A (FOUO)	PM	FSD	A1083	P18 (FOUO)	H	A1083 HFEA P.18	M A1081 P.8 H A1003 P.R-63 PAR (h) & P.R-VII -45	HF	PEND. RFP
1.08/3.03/3.04	1	IS THE AVIATOR TO OPERATE AS THE SYSTEM INTEGRATOR OR THE COMMANDER?	HOW DO PSYCHOMOTOR AND COGNITIVE PERFORMANCE REQUIREMENTS FOR LHX COMPARE WITH THOSE OF AIRCRAFT BEING REPLACED OR OTHER AIRCRAFT IN THE DOD INVENTORY?	A1083, HFEA 19-1/17/86 (FOUO)	PM/HEL	RFP	P1036	LHX MANPRINT MANAGEMENT PLAN ANNEX E, P. E-17	M		M A1003 P.R-35, PAR 3 a,b	HF	PEND.
1.08/3.03/3.04/4.0	1	IS THE AVIATOR TO OPERATE AS THE SYSTEM INTEGRATOR OR THE COMMANDER?	CAN THE AVAILABLE OPERATORS (PILOTS) BE SUCCESSFULLY TRAINED WITHIN THE TIME, COST OF CURRENT SYSTEMS, AND WITHOUT INCREASING THE CURRENT TRAINING FACILITIES?	P1038 LHX TSM-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING A1083, HFEA 19-1/17/86 (FOUO)	TRADOC	PRIOR TO FSD	P1038	PAGE HEADING 'HELICOPTER, TRAINING, OPERATOR' NO PAGE NUMBER A1083 P19	M			TNG	PEND. ICTP
1.09	1	IS THE SINGLE PIOT ABLE TO EFFECTIVELY HANDLE ALL EMERGENCY PROCEDURES AND ASSOCIATED ACTIONS?	DESIGN OF LHX NEEDS TO ASSURE THAT ALL EMERGENCY PROCEDURES CAN BE PERFORMED BY A SINGLE PILOT.	A1083, HFEA 20-1/17/86A (FOUO)	PM	PRIOR TO FSD	A1083	P20 (FOUO)	E	A1083 HFEA P.20		HF	PEND.
1.10/1.11/1.14/7.11/ 7.12	1	CAN A SINGLE PILOT COMPLETE THE MISSION, GIVEN SINGLE POINT FAILURES?	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	A1083, HFEA 22-1/17/86 (FOUO)	PM	OT II	A1083	P22 (FOUO)	E	A1083 HFEA P.22		HF	PEND. RFP
1.11/1.14/7.11/7.12	1	CAN A SINGLE PILOT REACT TO CHANGES IN THE MISSION?	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	A1083, HFEA 22-1/17/86 (FOUO)	PM	OT II	A1083	P22 (FOUO)	E	A1083 HFEA P.22		HF	PEND. RFP

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1.12	1	CAN THE AUTOMATIC TARGET ACQUISITION SYSTEM OPERATE QUICKLY AND ACCURATELY ENOUGH TO ALLOW THE SINGLE PILOT TO ACCOMPLISH THE MISSION AND HAVE ACCEPTABLE SURVIVABILITY?	CAN THE TARGET ACQUISITION PROCESS BE SUCCESSFULLY AUTOMATED TO ASSURE EFFECTIVE SINGLE CREW MEMBER OPERATIONS?	A1083, HFEA 24-1/17/86A (FOUO)	PM	FSD	A1083	P24 (FOUO)	E	A1083 HFEA P.24	M/H A1081 P.8 & P.9 H A1003 P.R-56-57,PAR (j)	HF	PEND. RFP
1.13/1.14/7.12	1	CAN SYSTEM AUTOMATION REDUCE PILOT WORKLOAD TO A POINT THAT WILL ALLOW THE SINGLE PILOT TO ACCOMPLISH THE MISSION AND HAVE ACCEPTABLE SURVIVABILITY?	WHAT SYSTEMS ARE AUTOMATED AND HOW SPECIFIC AUTOMATION ACCOMMODATES SINGLE CREW MEMBER OPERATION HAS NOT BEEN COMPLETELY ASSESSED. HF DESIGN STANDARDS DO NOT FULLY ADDRESS ISSUES AND TRADE OFFS IN AUTOMATION AND COGNITIVE OVERLOAD.	A1083, HFEA 25-1/17/86A (FOUO)	PM	FSD	A1083	P25 (FOUO)	E	A1083 HFEA P.25	M/H A1081 P.8 & P.9 H A1003 P.R-67, PAR C	HF-TNG	PEND. RFP
1.14/7.11/7.12	1	WILL SINGLE POINT FAILURES OF THE SYSTEM AUTOMATION INCREASE PILOT WORKLOAD SO AS TO PREVENT MISSION ACCOMPLISHMENT OR REDUCE SURVIVABILITY?	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	A1083, HFEA 22-1/17/86 (FOUO)	PM	OT II	A1083	P22 (FOUO)	E	A1083 HFEA P.22		HF	PEND. RFP
1.15	1	WHAT DATA ENTRY PROCEDURES PRESENT THE LEAST WORKLOAD TO THE PILOT AND THE LEAST DIVERSION OF HIS ATTENTION FROM THE BATTLEFIELD?	HOW CAN IN-FLIGHT DATA ENTRY SYSTEMS REDUCE WORKLOAD TO LEVELS REQUIRED FOR SUCCESSFUL OPERATIONS?	A1083, HFEA 26-1/17/86 (FOUO)	PM	PRIOR TO FSD	A1083	P26 (FOUO)	H	A1083 HFEA P.26		HF	PEND. RFP
1.16	1	CAN FLIGHT CONTROL AUTOMATION REDUCE WORKLOAD ENOUGH FOR THE SINGLE PILOT TO ACCOMPLISH THE MISSION?	CAN TECHNOLOGY ACCOMPLISH THE AUTOMATIC FLIGHT CONTROL WHICH IS CRITICAL TO SINGLE CREW MEMBER OPERATION?	A1083, HFEA 27-1/17/86 (FOUO)	PM	FSD	A1083	P27 (FOUO)	E	A1083 HFEA P.27	H A1081 P.8	HF	PEND. RFP
1.17	1	DOES THE MOUNTING OF SECONDARY SWITCHES AND BUTTONS ON THE SIDE-ARM-CONTOLLER DEGRADE THE PILOT'S PERFORMANCE?	THE HUMAN INTERACTIONS AND WORKLOAD RELATED TO FLYING THE AIRCRAFT WITH A "SIDE-ARM-CONTROLLER" AND CONTROLLING OTHER FUNCTIONS AT THE SAME TIME ARE NOT FULLY ASSESSED.	A1083, HFEA 32-1/17/86 (FOUO)	PM	FSD	A1083	P32 (FOUO)	E	A1083 HFEA P.32	M/H A1003 P.R-VII -17 SUMMARY	HF	RES. HFEA

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1.18/7.08	1	CAN THE NIGHT VISION PILOTAGE SYSTEM ALLOW A SINGLE PILOT TO FLY NOE AT NIGHT AND IN ADVERSE WEATHER TO ACCOMPLISH THE MISSION WITH AN ACCEPTABLE LEVEL OF SAFETY?	THE SYSTEM FOR NAVIGATING NOE AT NIGHT AND IN ADVERSE WEATHER CONDITIONS WHICH REQUIRES A WIDE FIELD OF VIEW WITH SUITABLE SENSITIVITY AND RESOLUTION, IS A HIGH RISK DEVELOPMENT.	A1083, HFEA 37-1/17/86A (FOUO)	PM	FSD	A1083	P37 (FOUO)	E	A1083 HFEA P.37	H A1081 P.8	HF	PEND. RFP
1.19R	1	WHAT ARE THE CREW STATION DESIGN CRITERIA FOR THE LHX-UTILITY INCLUDING THE SECOND CREW MEMBER STATION?	WHAT ARE THE CREW STATION DESIGN CRITERIA FOR THE LHX-UTILITY?	A1083, HFEA 11-1/17/86 (FOUO)	PM	PRIOR TO OT II	A1083	P11 (FOUO)	H	THIS DATA BASE AND A1083 HFEA P.11		HF	UNRES.
1.20R	1	CAN SINGLE PILOT OPERATION BE ACHIEVED WITHOUT MILLIMETER WAVE RADAR AND INTEGRATED COMMUNICATION, NAVIGATION, AND IDENTIFICATION AVIONICS?	CAN SINGLE PILOT OPERATION BE ACHIEVED WITHOUT MILLIMETER WAVE RADAR & INTEGRATED COMMUNICATION, NAVIGATION, IDENTIFICATION AVIONICS?	P1012, BTA, P3, PARA 1.8	PM	P3I PROGRAM	P1012	BTA, P3, PARA 1.8	H		H A1081 P.8	HF	UNRES.
1.20R	1	CAN SINGLE PILOT OPERATION BE ACHIEVED WITHOUT MILLIMETER WAVE RADAR AND INTEGRATED COMMUNICATION, NAVIGATION, AND IDENTIFICATION AVIONICS?	CAN SINGLE PILOT OPERATION BE ACHIEVED WITHOUT MILLIMETER WAVE RADAR & INTEGRATED COMMUNICATION, NAVIGATION, IDENTIFICATION AVIONICS?	P1012, BTA, P3, PARA 1.8	PM	P3I PROGRAM	P1012	BTA, P3, PARA 1.8	H		H A1081 P.8	HF	UNRES.
1.20R	1	CAN SINGLE PILOT OPERATION BE ACHIEVED WITHOUT MILLIMETER WAVE RADAR AND INTEGRATED COMMUNICATION, NAVIGATION, AND IDENTIFICATION AVIONICS?	CAN SINGLE PILOT OPERATION BE ACHIEVED WITHOUT MILLIMETER WAVE RADAR & INTEGRATED COMMUNICATION, NAVIGATION, IDENTIFICATION AVIONICS?	P1012, BTA, P3, PARA 1.8	PM	P3I PROGRAM	P1012	BTA, P3, PARA 1.8	H		H A1081 P.8	HF	UNRES.
1.21R/4.14R	1	WHAT ARE THE HUMAN FACTORS SPECIFICATIONS FOR DESIGN OF THE MISSION PLANNING/MAINTENANCE WORKSTATIONS?	FULL CAPABILITY AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCE ACTIVITIES.	A1083, HFEA 16-1/17/86A (FOUO)	TRADOC	PRIOR TO OT II	A1083	P16 (FOUO)	M	A1083 HFEA P.16		HF-TNG	UNRES.

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2.01/6.03	2	ARE THERE ENOUGH PEOPLE IN THE LHX UNITS TO SUPPORT, MAINTAIN AND OPERATE THE SYSTEM?	THE AMOUNT OF NON MAINTENANCE TASKS PER INDIVIDUAL MAINTAINER MAY INCREASE AS THE MAINTENANCE POPULATION DECREASES.	A1083, HFEA 31-1/17/86 (FOUO)	PM-ILS	OT II	A1004	TOA, APPENDIX U, VOL IX, TRAINING P U-19. PARA. PARA 4.	M	A1083 HFEA P.31		TNG	PEND.T OA AP U VOL IX
2.04/3.02/1.21R	2	WHAT ARE THE MANPOWER AND PERSONNEL REQUIREMENTS FOR THE MISSION PLANNING/MAINTENANCE WORKSTATIONS?	FULL CAPABILITY AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCE ACTIVITIES.	A1083, HFEA 16-1/17/86A (FOUO)	TRADOC	PRIOR TO OT II	A1083	P16 (FOUO)	M	A1083 HFEA P.16		HF	PEND. RFP
2.04/3.02/1.21R/4.14R	1	WHAT ARE THE MANPOWER AND PERSONNEL REQUIREMENTS FOR THE MISSION PLANNING/MAINTENANCE WORKSTATIONS?	FULL CAPABILITY AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCE ACTIVITIES.	A1083, HFEA 16-1/17/86A (FOUO)	TRADOC	PRIOR TO OT II	A1083	P16 (FOUO)	M	A1083 HFEA P.16		HF	PEND. RFP
2.04/3.02/4.14R	2	WHAT ARE THE MANPOWER AND PERSONNEL REQUIREMENTS FOR THE MISSION PLANNING/MAINTENANCE WORKSTATIONS?	FULL CAPABILITY AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCE ACTIVITIES.	A1083, HFEA 16-1/17/86A (FOUO)	TRADOC	PRIOR TO OT II	A1083	P16 (FOUO)	M	A1083 HFEA P.16		TNG	PEND. RFP
2.05R	2	CAN ALL UNIT MAINTENANCE FUNCTIONS BE PERFORMED BY NO MORE THAN THREE DIFFERENT MOS, INCLUDING CREW CHIEF?	CAN ALL UNIT MAINTENANCE FUNCTIONS BE PERFORMED BY NO MORE THAN THREE DIFFERENT MOS, INCLUDING CREW CHIEF?	R1003 ROC	PM/ILS	PRIOR TO FSD	R1003	ROC PAGE 6 PARAGRAPH 9	M			PERSONNEL LRU	UNRES.
3.02/1.21R/4.14R	1	WHAT ARE THE MANPOWER AND PERSONNEL REQUIREMENTS FOR THE MISSION PLANNING/MAINTENANCE WORKSTATIONS?	FULL CAPABILITY AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCE ACTIVITIES.	A1083, HFEA 16-1/17/86A (FOUO)	TRADOC	PRIOR TO OT II	A1083	P16 (FOUO)	M	A1083 HFEA P.16		HF-TNG	PEND. RFP

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3.03/3.04	1	CAN AN AVIATOR WITH THE INTELLIGENCE AND SKILL LEVELS OF CURRENT AVIATORS AND EXPECTED FUTURE RECRUITS EFFECTIVELY OPERATE THE ADVANCED SYSTEMS?	HOW DO PSYCHOMOTOR AND COGNITIVE PERFORMANCE REQUIREMENTS FOR LHX COMPARE WITH THOSE OF AIRCRAFT BEING REPLACED OR OTHER AIRCRAFT IN THE DOD INVENTORY?	A1083, HFEA 19-1/17/86 (FOUO)	PM/HEL	RFP	P1036	LHX MANPRINT MANAGEMENT PLAN ANNEX E, P. E-17	M		M	A1003 HF P.R-35, PAR 3 a,b	PEND.
3.03/3.04/4.0	1	CAN AN AVIATOR WITH THE INTELLIGENCE AND SKILL LEVELS OF CURRENT AVIATORS AND EXPECTED FUTURE RECRUITS EFFECTIVELY OPERATE THE ADVANCED SYSTEMS?	CAN THE AVAILABLE OPERATORS (PILOTS) BE SUCCESSFULLY TRAINED WITHIN THE TIME, COST OF CURRENT SYSTEMS, AND WITHOUT INCREASING THE CURRENT TRAINING FACILITIES?	P1038 LHX TSM-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING A1083, HFEA 19-1/17/86 (FOUO)	TRADOC	PRIOR TO FSD	P1038	PAGE HEADING 'HELICOPTER, TRAINING, OPERATOR' NO PAGE NUMBER A1083 P19	M			TNG	PEND. ICTP
3.04	1	WHAT ADDITIONAL SKILLS ARE REQUIRED OF THE LHX AVIATOR?	HOW DO PSYCHOMOTOR AND COGNITIVE PERFORMANCE REQUIREMENTS FOR LHX COMPARE WITH THOSE OF AIRCRAFT BEING REPLACED OR OTHER AIRCRAFT IN THE DOD INVENTORY?	A1083, HFEA 19-1/17/86 (FOUO)	PM/HEL	RFP	P1036	LHX MANPRINT MANAGEMENT PLAN ANNEX E, P. E-17	M		M	A1003 HF P.R-35, PAR 3 a,b	PEND.
3.04/4.0	1	WHAT ADDITIONAL SKILLS ARE REQUIRED OF THE LHX AVIATOR?	CAN THE AVAILABLE OPERATORS (PILOTS) BE SUCCESSFULLY TRAINED WITHIN THE TIME, COST OF CURRENT SYSTEMS, AND WITHOUT INCREASING THE CURRENT TRAINING FACILITIES?	P1038 LHX TSM-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING A1083, HFEA 19-1/17/86 (FOUO)	TRADOC	PRIOR TO FSD	P1038	PAGE HEADING 'HELICOPTER, TRAINING, OPERATOR' NO PAGE NUMBER A1083 P19	M			TNG	PEND. ICTP
4.01	1	IS THERE AN EFFECTIVE MEANS TO PROVIDE SCAT PILOT TRAINING WITHOUT THE USE OF TWO SEAT SCAT TRAINING AIRCRAFT?	HOW CAN SCAT TRAINING BE DONE AT THE UNIT LEVEL WITHOUT PROHIBITIVELY EXPENSIVE FIELDING TO UNITS OF A 2-PLACE LHX MODIFICATION?	R1003 ROC	TRADOC	TOA AP U VOL IX TNG	R1003	PAR 5.a.(3) "THE LHX WILL BE DESIGNED TO MINIMIZE OPERATIONS AND SUPPORT COSTS FOR THE LIFE OF THE SYSTEM."	M			TNG	RES.
4.02/5.01	2	WILL THE USE OF METRIC TOOLS AND MEASUREMENT ADVERSELY AFFECT MAINTENANCE TRAINING?	WHAT IS THE IMPACT OF THE USE OF METRIC MEASURE ON MAINTENANCE AND MAINTENANCE TRAINING?	A1083, HFEA 23-1/17/86 (FOUO)	PM	OT II	A1083	P23 (FOUO)	L	A1083 HFEA P.23		HF-TNG	RES. HFEA

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4.03	1	WHAT TRAINING FOR OPERATORS AND MAINTAINERS SHOULD TAKE PLACE AT THE UNIT?	WHAT ARE THE UNIT TRAINING REQUIREMENTS FOR OPERATORS AND MAINTAINERS IN TERMS OF INITIAL SKILLS, REQUALIFICATION, AND TACTICAL TRAINING?	A1083, HFEA 30-1/17/86 (FOUO)	TRADOC	PRIOR TO FSD	A1083	P30 (FOUO)	M	A1083 HFEA P.30		TNG	PEND.T OA AP U VOL IX
4.03	2	WHAT TRAINING FOR OPERATORS AND MAINTAINERS SHOULD TAKE PLACE AT THE UNIT?	WHAT ARE THE UNIT TRAINING REQUIREMENTS FOR OPERATORS AND MAINTAINERS IN TERMS OF INITIAL SKILLS, REQUALIFICATION, AND TACTICAL TRAINING?	A1083, HFEA 30-1/17/86 (FOUO)	TRADOC	PRIOR TO FSD	A1083	P30 (FOUO)	M	A1083 HFEA P.30		TNG	PEND.T OA AP U VOL IX
4.03	3	WHAT TRAINING FOR OPERATORS AND MAINTAINERS SHOULD TAKE PLACE AT THE UNIT?	WHAT ARE THE UNIT TRAINING REQUIREMENTS FOR OPERATORS AND MAINTAINERS IN TERMS OF INITIAL SKILLS, REQUALIFICATION, AND TACTICAL TRAINING?	A1083, HFEA 30-1/17/86 (FOUO)	TRADOC	PRIOR TO FSD	P1038	LHX TSM-ISSUES GENERATED AT 3 DEC 1985 FT RUCKER MEETING	M	A1083 HFEA P.30		TNG	PEND.T OA AP U VOL IX
4.04/4.05	2	WHAT IS THE EFFECT ON INSTITUTIONAL TRAINING OF HAVING TO CONDUCT TWO LEVEL MAINTAINANCE TRAINING SIMULTANEOUSLY DURING THE LHX PHASE-IN PERIOD?	WHAT IMPACT DOES TWO LEVEL MAINTENANCE HAVE ON INSTITUTIONAL AND UNIT LEVEL MAINTENANCE TRAINING DURING LHX 'PHASE IN' PERIOD AND WHEN STEADY STATE CONDITIONS ARE REACHED?	A1083, HFEA 33-1/17/86 (FOUO)	PM/ILS	PRIOR TO PRODUCTION	A1083	P33 (FOUO)	M	A1083 HFEA P.33		TNG	PEND.
4.05	2	WHAT IS THE EFFECT ON UNIT TRAINING?	WHAT IMPACT DOES TWO LEVEL MAINTENANCE HAVE ON INSTITUTIONAL AND UNIT LEVEL MAINTENANCE TRAINING DURING LHX 'PHASE IN' PERIOD AND WHEN STEADY STATE CONDITIONS ARE REACHED?	A1083, HFEA 33-1/1./86 (FOUO)	PM/ILS	PRIOR TO PRODUCTION	A1083	P33 (FOUO)	M	A1083 HFEA P.33		TNG	PEND.
4.06	1	WILL THE TRAINING PLAN PRODUCE ENOUGH PEOPLE WITH THE RIGHT TRAINING TO SUPPORT THE LHX SYSTEM AS IT IS FIELDED?	IS THE TRAINING PLAN ADEQUATE TO SUPPORT LHX FIELDING AT THE PROJECTED RATE?	A1083, HFEA 33-1/17/86 (FOUO)	PM/TRADOC	PRIOR TO FSD	A1083	P33 (FOUO)	M	A1083 HFEA P.33		TNG	PEND.

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4.06	2	WILL THE TRAINING PLAN PRODUCE ENOUGH PEOPLE WITH THE RIGHT TRAINING TO SUPPORT THE LHX SYSTEM AS IT IS FIELDED?	IS THE TRAINING PLAN ADEQUATE TO SUPPORT LHX FIELDING AT THE PROJECTED RATE?	A1083, HFEA 33-1/17/86 (FOUO)	PM/TRADOC	PRIOR TO FSD	/1083	P33 (FOUO)	H	A1083 HFEA P.33		TNG	PEND.
4.06	3	WILL THE TRAINING PLAN PRODUCE ENOUGH PEOPLE WITH THE RIGHT TRAINING TO SUPPORT THE LHX SYSTEM AS IT IS FIELDED?	IS THE TRAINING PLAN ADEQUATE TO SUPPORT LHX FIELDING AT THE PROJECTED RATE?	A1083, HFEA 33-1/17/86 (FOUO)	PM/TRADOC	PRIOR TO FSD	A1083	P33 (FOUO)	M	A1083 HFEA P.33		TNG	PEND.
4.07	1	SHOULD THE LHX BE USED IN INITIAL ENTRY ROTOR WING TRAINING?	AS THE LHX ENTERS THE INVENTORY CURRENT TRAINING AIRCRAFT MAY BE REPLACED BY LHX. THE LHX TRAINING PROGRAM/SYSTEM/AIRCRAFT SHOULD BE ESTABLISHED TO INCLUDE IERW.	A1083, HFEA 17-1/17/86A (FOUO)	TRADOC	PRIOR TO FSD	A1083	P17 (FOUO)	L	A1083 HFEA P.17		TNG	PEND.T OA AP U VOL IX
4.08	1	CAN EMBEDDED TRAINING BE UTILIZED IN THE LHX? WILL EMBEDDED TRAINING REDUCE INSTRUCTOR REQUIREMENTS AND IMPROVE TRAINING ACCESSABILITY?	WILL THE LHX DESIGN TAKE ADVANTAGE OF COMPUTER ASSISTED TRAINING (EMBEDDED TRAINING) TECHNOLOGIES FOR INITIAL AND UNIT TRAINING?	P1038, LHX TSM-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING A1083, HFEA 38-1/17/86A (FOUO)	PM	FSD	A1083	HFEA P38 (FOUO)	M	A1083 HFEA P.38		TNG	PEND. RFP
4.08	2	CAN EMBEDDED TRAINING BE UTILIZED IN THE LHX? WILL EMBEDDED TRAINING REDUCE INSTRUCTOR REQUIREMENTS AND IMPROVE TRAINING ACCESSABILITY?	WILL THE LHX DESIGN TAKE ADVANTAGE OF COMPUTER ASSISTED TRAINING (EMBEDDED TRAINING) TECHNOLOGIES FOR INITIAL AND UNIT TRAINING?	P1038, LHX TSM-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING	PM	FSD	A1083	HFEA P38 1/17/86 (FOUO)	M	A1083 HFEA P.38		TNG	PEND. RFP
4.08/4.12R	1	CAN EMBEDDED TRAINING BE UTILIZED IN THE LHX? WILL EMBEDDED TRAINING REDUCE INSTRUCTOR REQUIREMENTS AND IMPROVE TRAINING ACCESSABILITY?	HOW CAN THE USE OF NEW TECHNOLOGY SIMPLIFY AND REDUCE TRAINING RESOURCES?	P1038, LHX TSM-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING	TRADOC	PUBLICATION OF CTEA	R1001	O&O VI. PAR 1 "TRAINING WILL BE DESIGNED, VALIDATED, AND ADMINISTERED FOR OPERATOR, MAINTENANCE, AND SUPPORT PERSONNEL IN ACCORDANCE WITH US ARMY TRAINING AND DOCTRINE COMMAND (TRADOC), US ARMY MATERIEL COMMAND (AMC) AND APPROPRIATE MAJOR COMMANDS..."	L			TNG	PEND.T OA AP U VOL IX

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4.09	2	CAN THE AVAILABLE MAINTAINER PERSONNEL BE TRAINED TO MAINTAIN THE LHX?	ANALYSES OF MAINTENANCE TRAINING ARE COMPLICATED BY THE PROSPECT OF ALTERATIONS IN MAINTENANCE MOS'S, 2-LEVEL MAINTENANCE AND HARDWARE INNOVATIONS.	A1004, TOA, APPENDIX U, VOL IX, TRAINING P U-12 PARA "MAINTENANCE TRAINING" AND P U-28, PARA 4.	PM-ILS	PRIOR TO OT II	A1004	TOA, APPENDIX U, VOL IX, TRAINING P U-12. PARA. 'MAINTENANCE TRAINING' AND P U-28, PARA 4	M			TNG	PEND.TOA APU VOL IX
4.09/2.05R	2	CAN THE AVAILABLE MAINTAINER PERSONNEL BE TRAINED TO MAINTAIN THE LHX?	CAN ALL UNIT MAINTENANCE FUNCTIONS BE PERFORMED BY NO MORE THAN THREE DIFFERENT MOS, INCLUDING CREW CHIEF?	R1003 ROC	PM/ILS	PRIOR TO FSD	R1003	ROC PAGE 6 PARAGRAPH 9	M	A1082 "HARDMAN"		PERSONNEL LRU	PEND.
4.10R	1	WHAT ARE THE TRAINING REQUIREMENTS FOR THE SECOND CREW MEMBER IN THE UTILITY AIRCRAFT?	WHAT ARE THE TRAINING REQUIREMENTS FOR THE SECOND CREW MEMBER IN THE UTILITY AIRCRAFT?	A1083, HFEA 11-1/17/86 (FOUO)	TRADOC	PRIOR TO OT II	A1083	P11 (FOUO)	H	THIS DATA BASE AND A1083 HFEA P.11		TNG	UNRES
4.11R	1	ARE TRAINING STANDARDS ADEQUATE TO ALLOW SCAT PILOTS TO PERFORM UNDER HIGH TASK LOADING?	ARE TRAINING STANDARDS ADEQUATE TO ALLOW SCAT PILOTS TO PERFORM UNDER HIGH TASK LOADING?	P1038, LHX TSM-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING	TRADOC	OT II	P1038	PAGE HEADING 'HELICOPTER, TRAINING, OPERATORS' (NO PAGE NUMBER)	H			TNG	UNRES.
4.12R	1	HOW CAN THE USE OF NEW TRAINING TECHNOLOGY SIMPLIFY AND REDUCE TRAINING RESOURCES?	HOW CAN THE USE OF NEW TECHNOLOGY SIMPLIFY AND REDUCE TRAINING RESOURCES?	P1038, LHX TSM-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING	TRADOC	PUBLICATION OF CTEA	R1001	O&O VI. PAR 1 "TRAINING WILL BE DESIGNED, VALIDATED, AND ADMINISTERED FOR OPERATOR, MAINTENANCE, AND SUPPORT PERSONNEL IN ACCORDANCE WITH US ARMY TRAINING AND DOCTRINE COMMAND (TRADOC), US ARMY MATERIEL COMMAND (AMC) AND APPROPRIATE MAJOR COMMANDS..."	L			TNG	PEND.TOA APU VOL IX
4.13R	1	WHAT ARE THE TRAINING REQUIREMENTS FOR PERSONNEL OF OTHER AIRCRAFT STATIONED WITH THE LHX?	WHAT ARE THE TRAINING REQUIREMENTS FOR PERSONNEL OF OTHER AIRCRAFT STATIONED WITH THE LHX?	A1004, TOA, APPENDIX U, VOL IX, TRAINING P U-35	TRADOC	PRIOR TO FIELDING	A1004	TOA, APPENDIX U, VOL IX, TRAINING P U-35	L			TNG	PEND.TOA APU VOL IX

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4.13R	2	WHAT ARE THE TRAINING REQUIREMENTS FOR PERSONNEL OF OTHER AIRCRAFT STATIONED WITH THE LHX?	WHAT ARE THE TRAINING REQUIREMENTS FOR PERSONNEL OF OTHER AIRCRAFT STATIONED WITH THE LHX?	A1004, TOA, APPENDIX U, VOL IX, TRAINING P U-35	TRADOC	PRIOR TO FIELDING	A1004	TOA, APPENDIX U, VOL IX, TRAINING P U-35	L			TNG	PEND.TOA APU VOL IX
4.13R	3	WHAT ARE THE TRAINING REQUIREMENTS FOR PERSONNEL OF OTHER AIRCRAFT STATIONED WITH THE LHX?	WHAT ARE THE TRAINING REQUIREMENTS FOR PERSONNEL OF OTHER AIRCRAFT STATIONED WITH THE LHX?	A1004, TOA, APPENDIX U, VOL IX, TRAINING P U-35	TRADOC	PRIOR TO FIELDING	A1004	TOA, APPENDIX U, VOL IX, TRAINING P U-35	L			TNG	PEND TOA APU VOL IX
4.14R	1	WHAT TRAINING REQUIREMENTS ARE GENERATED BY THE MISSION PLANNING/MAINTENANCE WORKSTATION?	FULL CAPABILITY AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCE ACTIVITIES.	A1083, HFEA 16-1/17/86A (FOUO)	TRADOC	PRIOR TO OT II	A1083	P16 (FOUO)	M	A1083 HFEA P.16		HF-TNG	UNRES.
5.01	2	WILL THE USE OF METRIC TOOLS AND MEASUREMENT ADVERSELY AFFECT MAINTENANCE?	WHAT IS THE IMPACT OF THE USE OF METRIC MEASURE ON MAINTENANCE AND MAINTENANCE TRAINING?	A1083, HFEA 23-1/17/86 (FOUO)	PM	OT II	A1083	P23 (FOUO)	L	A1083 HFEA P.23		HF-TNG	RES HFEA
5.02	1	CAN THE LIGHTING REQUIREMENTS OF THE COCKPIT SYSTEMS (NIGHT VISION DEVICES, PANEL AND HELMET DISPLAYS, LASER AND FLASHBLINDNESS PROTECTORS) BE RESOLVED AND AN INTEGRATED LIGHTING SYSTEM DEVELOPED THAT DOES NOT INTERFERE WITH THOSE SYSTEMS OPERATION?	AN INTEGRATED APPROACH TO CREW STATION AND DISPLAY LIGHTING IS NEEDED. LIGHTING FOR MAINTENANCE AND FARP HAS NOT BEEN FULLY EVALUATED.	A1083, HFEA 29-1/17/86A (FOUO)	PM	FSD	A1083	P52 (FOUO)	E	A1083 HFEA P.29		HF	PEND. RFP
5.03	2	WHAT LIGHT IS REQUIRED TO FACILITATE MAINTENANCE?	AN INTEGRATED APPROACH TO CREW STATION AND DISPLAY LIGHTING IS NEEDED. LIGHTING FOR MAINTENANCE AND FARP HAS NOT BEEN FULLY EVALUATED.	A1083, HFEA 29-1/17/86A (FOUO)	PM	FSD	A1083	P29 (FOUO)	H	A 1083 HFEA P29		HF	PEND RFP

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5.04	3	WHAT LIGHTING IS REQUIRED TO FACILITATE FARP ACTIVITIES?	AN INTEGRATED APPROACH TO CREW STATION AND DISPLAY LIGHTING IS NEEDED. LIGHTING FOR MAINTENANCE AND FARP HAS NOT BEEN FULLY EVALUATED	A1083, HFEA 29-1/17/86A (FOUO)	PM	FSD	A1083	P29 (FOUO)	M	A1083 HFEA P.29		HF	PEND. RFP
5.05/5.06/5.07/5.08	2	DOES THE LHX DESIGN ALLOW FOR MAINTENANCE WHILE WEARING PROATECTIVE GARMENTS UNDER ALL CLIMATIC CONDITIONS?	DOES THE LHX SYSTEM DESIGN ADEQUATELY CONSIDER HUMAN FACTORS IN MAINTENANCE (E.G. ACCESSIBILITY, PROTECTIVE CLOTHING, COMPOSITE MATERIALS REPAIR, ETC)?	A1083, HFEA 40-1/17/85 (FOUO)	PM	PRIOR TO FSD	A1083	P40 (FOUO)	M	A1083 HFEA P.40		HF	PEND. RFP
5.05/7.03	2	DOES THE LHX DESIGN ALLOW FOR MAINTENANCE WHILE WEARING PROTECTIVE GARMENTS UNDER ALL CLIMATIC CONDITIONS?	NBC AND COLD WEATHER PROTECTIVE CLOTHING CAN HAVE AN ADVERSE IMPACT ON SOLDIER PERFORMANCE.	A1083, HFEA 7-1/17/86A (FOUO)	PM	OT II	A1083	P7 (FOUO)	H	A1083 HFEA P7		HF	PEND RFP
5.07/5.08	2	DOES THE LHX DESIGN PROVIDE BIT, BITE, AND ATE WHICH THE MAINTAINER CAN USE AND UNDERSTAND?	DOES THE LHX SYSTEM DESIGN ADEQUATELY CONSIDER HUMAN FACTORS IN MAINTENANCE (E.G. ACCESSIBILITY, PROTECTIVE CLOTHING, COMPOSITE MATERIALS REPAIR, ETC)?	A1083, HFEA 40-1/17/85 (FOUO)	PM	PRIOR TO FSD	A1083	P40 (FOUO)	M	A1083 HFEA P.40		HF	PEND RFP
5.08	2	HAS THE REPAIRABILITY/MAINTAINABILITY OF COMPOSITE MATERIALS BEEN CONSIDERED?	DOES THE LHX SYSTEM DESIGN ADEQUATELY CONSIDER HUMAN FACTORS IN MAINTENANCE (E.G. ACCESSIBILITY, PROTECTIVE CLOTHING, COMPOSITE MATERIALS REPAIR, ETC)?	A1083, HFEA 40-1/17/85 (FOUO)	PM	PRIOR TO FSD	A1083	P40 (FOUO)	M	A1083 HFEA P.40		HF	PEND RFP
5.09	1	HAVE ANY PREPLANNED PRODUCT IMPROVEMENTS BEEN EXAMINED FOR MANPRINT IMPLICATIONS?	PRODUCT IMPROVEMENT MUST BE FULLY INTEGRATED TO ASSURE IMPROVED SYSTEM PERFORMANCE.	A1083, HFEA 41-1/17/86A (FOUO)	PM	START OF P3I PROGRAM	P1038	LHX TSM-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING	M	A1083 HFEA P.41	M/H A1003 P R-36, PAR (e)	TNG	PEND RFP

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5.09	2	HAVE ANY PREPLANNED PRODUCT IMPROVEMENTS BEEN EXAMINED FOR MANPRINT IMPLICATIONS?	PRODUCT IMPROVEMENT MUST BE FULLY INTEGRATED TO ASSURE IMPROVED SYSTEM PERFORMANCE.	A1083, HFEA 41-1/17/86A (FOUO)	PM	START OF P3I PROGRAM	A1083	P41 (FOUO)	H	A1083 HFEA P.41	M/H A1003 P.R-36, PAR (e)	TNG	PEND. RFP
5.10	3	WILL THE DESIGN OF THE LHX ALLOW IT TO BE SERVICED AT THE FARP BY ONLY TWO SOLDIERS WITHOUT GROUND HANDLING EQUIPMENT IN 15 MINUTES?	REQUIRED TURN AROUND TIME IN FARP IS 15 MINUTES WITHOUT GHE. REARMING IS TO BE DONE WITH 2 SOLDIERS PER AIRCRAFT.	A1083, HFEA 44-1/17/86A (FOUO)	LOG CEN	OT II	A1083	P44 (FOUO)	H	A1083 HFEA P.44		HF	PEND. RFP
5.15	1	WHAT IS THE ANTHROPOMETRIC DESCRIPTION OF THE POPULATION OF INDIVIDUALS INVOLVED IN OPERATING, MAINTAINING AND SUPPORTING THE LHX? (I.E., RANGE OF PHYSICAL DIMENSIONS FOR MEN & WOMEN)	ANTHROPOMETRIC REQUIREMENTS HAVE NOT BEEN ESTABLISHED FOR THE LHX	A1075, HH ISSUES, P-10	PM	RFP	A1075	HH ISSUES, P-10	E	R1010, RFP P2.3.2 .16.4 AND 3.3.3		HF	RES. RFP
6.01/7.10	1	IS THE INTERACTION OF FATIGUE/STRESS/ANXIETY OVERDEMANDING IN THE SINGLE PLACED COCKPIT TO THE EXTENT THAT MISSION ACCOMPLISHMENT IS RISKED?	FATIGUE/STRESS/ ANXIETY MAY DEGRADE SINGLE CREW MEMBER PERFORMANCE ESPECIALLY IN DEGRADED MODES OF OPERATION.	A1083, HFEA 3-1/17/86A (FOUO)	USAARL	OT II	A1083	P3 (FOUO)	H	A1083 HFEA P.3		HF	PEND.
6.01/7.10	1	IS THE INTERACTION OF FATIGUE/STRESS/ANXIETY OVERDEMANDING IN THE SINGLE PLACED COCKPIT TO THE EXTENT THAT MISSION ACCOMPLISHMENT IS RISKED?	HOW SUCCESSFULLY DOES THE CURRENT LHX DESIGN DEAL WITH THE HUMAN FACTORS ISSUES IN COGNITIVE OVERLOAD AND PILOT FATIGUE DURING COMBAT OPERATIONS, CONTINUED OPERATION, AND NBC OPERATIONS?	A1083, HFEA 3-1/17/86A	PM	OT II	P1038	LHX TSN-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING	H		M/H A1081 P.8 & P.9	HF-TNG	PEND.
6.02	1	IS WHOLE BODY VIBRATION DETRIMENTAL TO CREW PERFORMANCE AND MISSION ACCOMPLISHMENT?	PROLONGED EXPOSURE TO WHOLE BODY VIBRATION MAY HAVE AN UNDESIRABLE IMPACT ON THE AIRCREW.	A1083, HFEA 4-1/17/86 (FOUO)	USAARL	TT	A1083	P4 (FOUO)	L	A1083 HFEA P.4		HF	PEND. RFP

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7.01	1	IS THERE A REASONABLE POTENTIAL FOR EXPOSURE OF OCCUPANTS TO EXCESSIVE QUANTITIES OF HALON 1301 FIRE EXTINGUISHING AGENTS?	CURRENT FIRE EXTINGUISHING SYSTEMS OFTEN USE HALON 1301 WHICH CAN HAVE ADVERSE HEALTH EFFECTS ON PERSONNEL.	A1083, HFEA 5-1/17/86 (FOUO)	PM	TT	A1083	P5 (FOUO)	L	A1083 HFEA P.5		HH	PEND. RFP
7.02	1	DOES THE DESIGN OF THE LHX PROVIDE AN ENVIRONMENTAL CONTROL SYSTEM SUFFICIENT TO PROTECT THE CREW AND PASSENGERS FROM COMBAT CONTAMINANTS AND ENVIRONMENTAL ELEMENTS?	INADEQUATE VENTILATION, HEATING OR COOLING COULD ADVERSELY AFFECT CREW AND PASSENGER PERFORMANCE AND COULD CREATE A HEALTH HAZARD.	A1083, HFEA 6-1/17/86A (FOUO)	PM	FSD	A1083	P6 (FOUO)	M	A1083 HFEA P.6	L A1003 P.R-58, PAR (d)	HF	PEND. RFP
7.03	1	IS PERSONNEL AND PROTECTIVE EQUIPMENT COMPATIBLE WITH THE TASK AND EQUIPMENT INERFACES TO PERMIT PERSONNEL TO ACCOMPLISH FUNCTIONS?	NBC AND COLD WEATHER PROTECTIVE CLOTHING CAN HAVE AN ADVERSE IMPACT ON SOLDIER PERFORMANCE.	A1083, HFEA 7-1/17/86A (FOUO)	PM	OT II	A1083	P7 (FOUO)	H	A1083 HFEA P.7		HF	PEND. RFP
7.03	2	IS PERSONAL AND PROTECTIVE EQUIPMENT COMPATIBLE WITH THE TASK AND THE EQUIPMENT INTERFACES TO PERMIT PERSONNEL TO ACCOMPLISH FUNCTIONS?	NBC AND COLD WEATHER PROTECTIVE CLOTHING CAN HAVE AN ADVERSE IMPACT ON SOLDIER PERFORMANCE.	A1083, HFEA 7-1/17/86A (FOUO)	PM	OT II	A1083	P7 (FOUO)	H	A1083 HFEA P7		HF	PEND. RFP
7.04	1	DOES THE CRASHWORTHINESS OF THE LHX MEET ACCEPTABLE STANDARDS FOR INJURY AND DEATH AVOIDANCE?	CRASHWORTHINESS OF LHX IS DEFINED AS "MODIFIED" MIL-STD-1290, HOWEVER EXTENT OF MODIFICATION IS UNDEFINED.	A1083, HFEA 8-1/17/86A (FOUO)	PM	PRIOR TO FSD	A1083	P8 (FOUO)	M	A1083 HFEA P.8		HH	PEND.
7.05	1	IS EXCESSIVE NOISE ENVIRONMENT PRESENT THAT WILL REDUCE PERSONNEL PERFORMANCE OR CREATE HEALTH HAZARDS?	STEADY STATE AND IMPULSE NOISE LEVELS OF THE LHX MAY DEGRADE AIR AND GROUND CREWS' PERFORMANCE AND MAY POSE HEALTH HAZARDS.	A1083, HFEA 9-1/17/86A (FOUO)	PM	TT	A1083	P9 (FOUO)	M	A1083 HFEA P.9		HF	PEND. RFP

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7.05	2	IS EXCESSIVE NOISE ENVIRONMENT PRESENT THAT WILL REDUCE PERSONNEL PERFORMANCE OR CREATE HEALTH HAZARDS?	STEADY STATE AND IMPULSE NOISE LEVELS OF THE LHX MAY DEGRADE AIR AND GROUND CREWS' PERFORMANCE AND MAY POSE HEALTH HAZARDS	A1083, HFEA 9-1/17/86A (FOUO)	PM	TT	A1083	P9 (FOUO)	M	A1083 HFEA P.9		HF	PEND. RFP
7.06	1	IS THE PROTECTION OF PERSONNEL FROM LASERS, RADIO FREQUENCY AND MICROWAVE SUFFICIENT TO PRECLUDE HEALTH SAFETY HAZARDS?	LASERS AND IR RADIATION CAN PRODUCE VISUAL DAMAGE DURING COMBAT AND TRAINING. RF AND MICROWAVE EXPOSURE ARE POTENTIAL HEALTH HAZARDS.	A1083, HFEA 10-1/17/86 (FOUO)	PM	TT	A1083	P10 (FOUO)	H	A1083 HFEA P.10		HH-TNG	PEND. RFP
7.06	2	IS THE PROTECTION OF PERSONNEL FROM LASERS, RADIO FREQUENCY AND MICROWAVE SUFFICIENT TO PRECLUDE HEALTH SAFETY HAZARDS?	LASERS AND IR RADIATION CAN PRODUCE VISUAL DAMAGE DURING COMBAT AND TRAINING. RF AND MICROWAVE EXPOSURE ARE POTENTIAL HEALTH HAZARDS.	A1083, HFEA 10-1/17/86 (FOUO)	PM	TT	A1083	P10 (FOUO)	H	A1083 HFEA P.10		HH-TNG	PEND. RFP
7.07	1	IS THE SINGLE CREWMEMBER LHX MORE OR LESS SURVIVABLE THAN A TWO CREWMEMBER AIRCRAFT?	IS THE SINGLE CREW MEMBER LHX MORE OR LESS SURVIVABLE THAN A TWO CREW MEMBER AIRCRAFT?	A1083, HFEA 21-1/17/86 (FOUO)	PM	TT	A1083	P21 (FOUO)	M	A1083 HFEA P.21	M A1003 P.R-35, 36 PAR (d)	HH	PEND. COEA
7.08	1	CAN THE NIGHT VISION PILOTAGE SYSTEM ALLOW A SINGLE PILOT TO FLY NOE AT NIGHT AND IN ADVERSE WEATHER TO ACCOMPLISH THE MISSION WITH AN ACCEPTABLE LEVEL OF SAFETY?	THE SYSTEM FOR NAVIGATING NOE AT NIGHT AND IN ADVERSE WEATHER CONDITIONS WHICH REQUIRES A WIDE FIELD OF VIEW WITH SUITABLE SENSITIVITY AND RESOLUTION, IS A HIGH RISK DEVELOPMENT.	A1083, HFEA 37-1/17/86A (FOUO)	PM	FSD	A1083	P37 (FOUO)	E	A1083 HFEA P.37	H A1081 P.8	HF	PEND. RFP
7.09	2	WHAT WILL BE THE EFFECT OF FATIGUE/STRESS ON LHX MAINTENANCE?	WILL THE FATIGUE AND STRESS FROM THE MAINTENANCE BURDEN OF SUSTAINED CONTINUOUS OPERATIONS ADVERSELY AFFECT MISSION ACCOMPLISHMENT?	A1083, HFEA 39-1/17/86A (FOUO)	PM	OT II	A1083	P39 (FOUO)	M	A1083 HFEA P.39		HF	PEND.

LHX MANPRINT SMMP CRITICAL QUESTION REPORT
(ISREP-S)

(INDEXED ON SMMP + TYPECD + ISSUTYP)

SMMP CRITICAL QUESTION NUMBER	OPER=1 MAIN=2 SUPT=3	CRITICAL QUESTION	ALLEN DERIVED ISSUE	DOCUMENTATION SUPPORTING ISSUE SELECTION	RESPONSIBLE AGENCY	WHEN RESOLVED	SOURCE DOCUMENT IDNO	PAGE/PARA IN SOURCE DOCUMENT	CRITICALITY SCORE	SOURCE OF SOLU'N	RISK	MANPRINT DOMAIN	STATUS
7.10	1	HOW MUCH WILL STRESS AND FATIGUE AFFECT MISSION ACCOMPLISHMENT?	HOW SUCCESSFULLY DOES THE CURRENT LHX DESIGN DEAL WITH THE HUMAN FACTORS ISSUES IN COGNITIVE OVERLOAD AND PILOT FATIGUE DURING COMBAT OPERATIONS, CONTINUED OPERATION, AND NBC OPERATIONS?	A1083, HFEA 3-1/17/86A	PM	OT II	P1038	LHX TSN-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING	H		M/H A1081 P.8 & P.9	HF	PEND.
7.10	1	HOW MUCH WILL STRESS AND FATIGUE AFFECT MISSION ACCOMPLISHMENT?	FATIGUE/STRESS/ ANXIETY MAY DEGRADE SINGLE CREW MEMBER PERFORMANCE ESPECIALLY IN DEGRADED MODES OF OPERATION.	A1083, HFEA 3-1/17/86 (FOUO)	USAARL	OT II	A1083	P3 (FOUO)	H	A1083 HFEA P.3		HF-TNG	PEND.
7.10	3	HOW MUCH WILL STRESS AND FATIGUE AFFECT MISSION ACCOMPLISHMENT?	WILL THE FATIGUE AND STRESS FROM THE MAINTENANCE BURDEN OF SUSTAINED CONTINUOUS OPERATIONS ADVERSELY AFFECT MISSION ACCOMPLISHMENT?	A1083, HFEA 39-1/17/86A (FOUO)	PM	OT II	A1083	P39 (FOUO)	M	A1083 HFEA P.39		HF	PEND.
7.11/7.12	1	CAN A SINGLE PILOT COMPLETE THE MISSION, GIVEN SINGLE POINT FAILURES?	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	A1083, HFEA 22-1/17/86 (FOUO)	PM	OT II	A1083	P22 (FOUO)	E	A1083 HFEA P.22		HF	PEND. RFP
7.12	1	WILL SINGLE POINT FAILURES OF THE SYSTEM AUTOMATION INCREASE PILOT WORKLOAD SO AS TO PREVENT MISSION ACCOMPLISHMENT OR REDUCE SURVIVABILITY?	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	A1083, HFEA 22-1/17/86 (FOUO)	PM	OT II	A1083	P22 (FOUO)	E	A1083 HFEA P.22		HF	PEND. RFP
7.12	1	WILL SINGLE POINT FAILURES OF THE SYSTEM AUTOMATION INCREASE PILOT WORKLOAD SO AS TO PREVENT MISSION ACCOMPLISHMENT OR REDUCE SURVIVABILITY?	WHAT SYSTEMS ARE AUTOMATED AND HOW SPECIFIC AUTOMATION ACCOMMODATES SINGLE CREW MEMBER OPERATION HAS NOT BEEN COMPLETELY ASSESSED. HF DESIGN STANDARDS DO NOT FULLY ADDRESS ISSUES AND TRADE OFFS IN AUTOMATION AND COGNITIVE OVERLOAD.	A1083, HFEA 25-1/17/86A (FOUO)	PM	FSD	A1083	P25 (FOUO)	E	A1083 HFEA P.25	M/H A1081 P.8 & P.9 H A1003 P.R-67, PAR C	HF-TNG	PEND. RFP

ISSUES, Impact, and Proposed Solution Reported by
SMMP Critical Question Number Sequence

The following listing is of the Allen derived Issue Statement; the impact of the issue; the proposed solution; the responsible agency; and the event by which the issue is to be resolved. This listing was prepared for ease of reference, using the critical question number as the search key, and may be used in conjunction with the immediately preceding and identically arranged listing.

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LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(lister prg)

CRITICAL QUESTION NO.	ISSUE CODE	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED
	01013	CAN A PILOT SUCCESSFULLY ENGAGE OTHER HELICOPTERS IN AIR TO AIR COMBAT WHILE FLYING THE A/C?	THE DEMANDS OF FLYING MAY INTERFERE WITH ABILITY TO ACQUIRE ENEMY A/C DURING AIR TO AIR COMBAT CAUSING EITHER LOSS OF A/C BY FIRE, OR BY LOSS OF CONTROL	(UNKNOWN)	PM/TRADOC	OT II
	01055	VISUAL DISPLAY PARAMETERS MUST FALL WITHIN ACCEPTABLE OPERATIONAL LIMITS.	IMPROPER INFORMATION DISPLAY AND INADEQUATE FIELD OF VIEW CAN DEGRADE PILOT PERFORMANCE	ENSURE THAT DISPLAY DESIGN PARAMETERS ARE WITHIN RECOGNIZED LIMITS. CONDUCT RESEARCH TO DETERMINE THE FIELD OF VIEW REQUIRED FOR HELICOPTER OPERATIONS.	PM	FSD
	01011	(PILOT PERFORMANCE) IS THERE DEGRADATION OF PILOT PERFORMANCE OR ARE THERE LONG-TERM HEALTH IMPLICATIONS STEMMING FROM CURRENT LHX DESIGN?	HEALTH HAZARDS. UNCORRECTED HEALTH HAZARDS CAN BE COSTLY TO PILOTS HEALTH AND DETRIMENTAL TO UNIT EFFECTIVENESS.	(UNKNOWN)	USAARL	OT II
	01018	WHAT IS THE NUMBER OF SKILLS AND WHAT SKILL LEVELS ARE REQUIRED FOR CURRENT LIGHT FLEET OPERATIONS? LHX SHOULD REDUCE THIS.	POTENTIAL IMPACT ON PERSONNEL SELECTION, TRAINING MOS DETERMINATION, UNIT MANNING AND FORCE STRUCTURE.	THE HARDMAN ANALYSIS SHOULD PROVIDE THE INFORMATION.	TRADOC	PRIOR TO OT II
	01007	WHAT IS THE MOST COST EFFECTIVE AND TRAINING EFFECTIVE MIX OF PART-TASK, FULL MISSION SIMULATOR AND OPERATIONAL AIRCRAFT IN INITIAL ENTRY LHX PILOT TRAINING?	PILOT TRAINING. UNLESS COST EFFECTIVENESS AND TRAINING EFFECTIVENESS STUDIES ARE PERFORMED TO DETERMINE THE APPROPRIATE MIX OF TRAINING MEDIA AND METHODS, TRAINING OF PILOTS WILL SUFFER.	(UNKNOWN)	TRADOC	PUBLICATION OF CTEA

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(lister prg)

CRITICAL QUESTION NO.	ISSUE CODE	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED
	01017	IS CONTRACTOR DELIVERED TRAINING LIMITED TO PILOT TRAINING? STATEMENT IN ROC IS NOT CLEAR.	POTENTIAL IMPACT ON TRAINING	CONTRACTOR DELIVERED TRAINING IS ADDRESSED IN 1ST DRAFT RFP AND IS NOT LIMITED TO PILOT TRAINING.	PM/TRADOC	TOA AP U VOL IX, TNG
	M1007	WHAT SYSTEMS ARE AUTOMATED AND HOW SPECIFIC AUTOMATION ACCOMMODATES SINGLE CREW MEMBER OPERATION HAS NOT BEEN COMPLETELY ASSESSED. HF DESIGN STANDARDS DO NOT FULLY ADDRESS ISSUES AND TRADE-OFFS IN AUTOMATION AND COGNITIVE OVERLOAD.	IF MAN-MACHINE INTEGRATION WITH AUTOMATED SYSTEMS IS NOT FULLY DEVELOPED, SINGLE CREW MEMBER LHX MISSION ACCOMPLISHMENT AND SURVIVABILITY WILL BE GREATLY REDUCED.	ACCELERATE DEVELOPMENT OF CRITICAL INFORMATION PROCESSING TECHNOLOGIES. CONDUCT ANALYSIS, SIMULATION AND EVALUATIONS TO ASSESS CAPABILITIES. REVISE HF DESIGN STANDARDS. DEVELOP EFFECTIVE TRAINING.	PM	FSD
	M1001	WHAT IS THE NUMBER OF SKILLS AND WHAT SKILL LEVELS ARE REQUIRED FOR CURRENT LIGHT FLEET OPERATIONS? LHX SHOULD REDUCE THIS.	POTENTIAL IMPACT ON PERSONNEL SELECTION, TRAINING MOS DETERMINATION, UNIT MANNING AND FORCE STRUCTURE.	THE HARDMAN ANALYSIS SHOULD PROVIDE THE INFORMATION.	TRADOC	PRIOR TO OT II
	S1007	OPTIMAL PATIENT CARE NOT PROVIDED. NO OXYGEN, COOLING OR OVER PRESSURE PROVIDED FOR PATIENTS.	ENHANCED ENROUTE PATIENT CARE WILL RESULT IN A MORE STABLE PATIENT DELIVERED TO A MEDICAL TREATMENT FACILITY AND WILL SPEED RETURN TO DUTY.	2ND DRAFT RFP PROVIDES OXYGEN FOR PATIENTS.	PM	RFP
	S1001	WILL THE LARGER LHX FLEET RESULT IN AN INCREASE IN THE TOTAL NUMBER OF PERSONNEL REQUIRED TO OPERATE AND ADMINISTER THE COMPLEX LHX TRAINING DEVICES?	POTENTIAL IMPACT ON FORCE STRUCTURE	INCLUDE IN HARDMAN ANALYSIS. INCLUDE IN QQPRI. LOOK FOR OFF-SETTING REDUCTIONS AS LHX DEVELOPMENT PROGRESSES.	TRADOC	PRIOR TO PRODUCTION

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(lister prg)

CRITICAL QUESTION NO	ISSUE CODE	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED
1.0	01012	CAN A SINGLE PILOT OPERATE THE LHX IN THE GIVEN OPERATIONAL MODE SUMMARY AND MISSION PROFILES?	BECAUSE OF ANTICIPATED HIGH COMPLEXITY OF LHX, TRAINING TIME WOULD PROBABLY BE HIGHER THAN THE FOOTPRINT TRAINING TIME UNLESS MODERN HIGH TECH TRAINING METHODS ARE EMPLOYED	USE OF INDIVIDUALIZED INSTRUCTION /SIMULATION COULD PROVIDE PILOTS MORE "QUALITY TIME" THAN BY USING CONVENTIONAL METHODS.	PM	OT II
1.01	01022	CAN AN EFFECTIVE AND ACCEPTABLE HELMET MOUNTED DISPLAY BE DEVELOPED FOR LHX?	INADEQUATE HMD WILL DEGRADE PILOT PERFORMANCE AND HINDER MISSION PERFORMANCE	WORK BOTH TECHNOLOGY AND HUMAN FACTORS AREAS TO PROVIDE BEST HMD FOR LHX, APPROPRIATE TRAINING	PM	FSD
1.02	01023	CAN LHX FLIGHT HELMET WITH HMD SIGHTING SYSTEM, AND POSSIBLE NBC, LASER, AND FLASH BLINDESS PROTECTIVE DEVICES MEET WEIGHT REQUIREMENTS?	EXCESSIVE HELMET WEIGHT DEGRADES CREW AND MISSION PERFORMANCE AND POSES POTENTIAL HEALTH HAZARD	DESIGN LHX HELMET SYSTEM TO MEET 3.95 POUND CRITERIA WITH PROPER CENTER OF GRAVITY AND BALLISTIC AND EYE PROTECTION TO MEET ANSI Z87.1 CRITERIA	PM	FSD
1.03	01033	CLEAR SPEECH COMMUNICATION AND AUDIO CUES ARE CRITICAL FOR SINGLE PILOT OPERATIONS. IMPROVED SPEECH INTELLIGIBILITY OVER CURRENT AIRCRAFT IS NECESSARY.	LACK OF IMPROVED COMMUNICATIONS CAN INCREASE OPERATOR WORKLOAD AND REDUCE COMBAT EFFECTIVENESS	DEVELOP IMPROVED COMMUNICATIONS FOR LHX TO COINCIDE WITH LHX FSD	PM	FSD
1.04	01034	LHX CONCEPTS PROVIDE EITHER: # 1 HELMET MOUNTED NIGHT VISION SYSTEM, OR #2, NIGHT VISION GOGGLES FOR UTILITY PILOT. #1 LEAVES SECOND CREW MEMBER WITH NO N.V. CAPABILITY. WITH #2 CURRENT SAFETY AND OPERATION CONSTRAINTS PRECLUDE SINGLE PILOT OPERATION AT NIGHT.	REDUCED NIGHT TIME OPERATING CAPABILITY AND/OR INCREASED HAZARDS, ESPECIALLY AT NOE ALTITUDES.	2ND DRAFT RFP SPECIFIES USE OF NIGHT VISION GOGGLES.	PM	RFP

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(lister prg)

CRITICAL QUESTION NO	ISSUE CODE	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED
1.05	01035	THE RESOLUTION/ACCURACY OF THE DIGITAL DATA BASE FOR THE MAP DISPLAY IS LESS THAN THAT REQUIRED FOR NOE/ADVERSE WEATHER NAVIGATION.	CRITICAL TO SINGLE PILOT OPERATIONS. REDUCTION OF PILOT NAVIGATION WORK LOAD MAY NOT REACH THE DESIRED LEVEL.	EVALUATE PROPOSED SYSTEM CAPABILITIES PRIOR TO FINAL CREW COMPLEMENT DECISION.	PM	FSD
1.06	01036	SCAT COMBAT MISSIONS INCLUDE A REQUIREMENT FOR THE PILOT TO MAINTAIN FLIGHT CONTROL AND/OR PERFORM A TARGET DESIGNATION TASK WHILE EFFECTIVELY USING THE TURRETED GUN IN AN OFF-AXIS ENGAGEMENT. CAN THE PILOT CONCURRENTLY PERFORM THESE TASKS SUCCESSFULLY?	IF PILOT WORKLOAD IS TOO HIGH OPERATIONAL EFFECTIVENESS AND SURVIVABILITY OF THE SCAT WILL BE REDUCED	THROUGH SIMULATION AND SURROGATE AIRCRAFT OPERATION, EVALUATE EFFECTIVENESS OF OFF-AXIS ENGAGEMENT WHILE PERFORMING FLIGHT TASKS PRIOR TO FINAL CREW COMPLEMENT DECISION.	TRADOC	OT II
1.07	01039	VOICE RECOGNITION SYSTEMS ARE NECESSARY TO REDUCE PILOT WORKLOAD. TECHNOLOGY DOES NOT APPEAR SUFFICIENTLY MATURE TO MEET REQUIREMENTS UNDER COMBAT CONDITIONS.	PILOT WORKLOAD WOULD BE INCREASED TO A CRITICAL DEGREE AND MISSION PERFORMANCE WOULD BE DEGRADED.	DEVELOP VOICE RECOGNITION SYSTEM THAT WILL OPERATE EFFECTIVELY IN THE COMBAT ENVIRONMENT.	PM	FSD
1.08/3.03/3.04	01058	HOW DO PSYCHOMOTOR AND COGNITIVE PERFORMANCE REQUIREMENTS FOR LHX COMPARE WITH THOSE OF AIRCRAFT BEING REPLACED OR OTHER AIRCRAFT IN THE DOD INVENTORY?	IMPACT ON FEASIBILITY OF SINGLE PILOT OPERATION	ARTI RESULTS. ARMY/NASA CREW STATION SIMULATION STUDIES.	PM/HEL	RFP

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(lister prg)

CRITICAL QUESTION NO	ISSUE CODE	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED
1 08/3.03/3 04/4.0	01003	CAN THE AVAILABLE OPERATORS (PILOTS) BE SUCCESSFULLY TRAINED WITHIN THE TIME, COST OF CURRENT SYSTEMS, AND WITHOUT INCREASING THE CURRENT TRAINING FACILITIES?	THE PROPOSED LHX IS A HIGHLY COMPLEX WEAPONS SYSTEM PLATFORM AND MAY REQUIRE APTITUDES THAT ARE NOT AVAILABLE IN SUFFICIENT QUANTITY AMONG THE POPULATION THAT FEEDS THE PILOT POOL. IF THIS IS TRUE, THEN PILOTS WITH LOWER APTITUDES WOULD HAVE TO BE ACCESSED AND TRAINING TIME AND COSTS INCREASED CORRESPONDINGLY.	(UNKNOWN)	TRADOC	PRIOR TO FSD
1.09	01040	DESIGN OF LHX NEEDS TO ASSURE THAT ALL EMERGENCY PROCEDURES CAN BE PERFORMED BY A SINGLE PILOT.	OCCUPANT AND AIRCRAFT SURVIVABILITY DEPENDS UPON THE CAPABILITY TO SUCCESSFULLY PERFORM EMERGENCY PROCEDURES.	ASSESS LHX EMERGENCY PROCEDURES AND ESTABLISH APPROPRIATE DESIGN REQUIREMENTS	PM	PRIOR TO FSD
1 10/1.11/1.14/7.11/7.12	01042	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	IF PART OF THE MISSION EQUIPMENT CAPABILITY IS DISABLED, THE PILOT MAY BE UNABLE TO COMPLETE THE MISSION AND/OR RETURN HOME.	PERFORM ANALYSES, SIMULATION AND OPERATIONAL EVALUATION TO ASSURE THAT THE SYSTEM DESIGN PROVIDES SUFFICIENT FLEXIBILITY FOR MISSION SUCCESS.	PM	OT II

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(lister prg)

CRITICAL QUESTION NO.	ISSUE CODE	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED
1.11/1.14/7.11/7.12	01042	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	IF PART OF THE MISSION EQUIPMENT CAPABILITY IS DISABLED, THE PILOT MAY BE UNABLE TO COMPLETE THE MISSION AND/OR RETURN HOME.	PERFORM ANALYSES, SIMULATION AND OPERATIONAL EVALUATION TO ASSURE THAT THE SYSTEM DESIGN PROVIDES SUFFICIENT FLEXIBILITY FOR MISSION SUCCESS.	PM	OT II
1.12	01043	CAN THE TARGET ACQUISITION PROCESS BE SUCCESSFULLY AUTOMATED TO ASSURE EFFECTIVE SINGLE CREW MEMBER OPERATIONS?	ACCURATE AND RAPID ACQUISITION OF TARGETS IS CRITICAL TO OPERATIONAL EFFECTIVENESS.	PRIOR TO FINAL CREW COMPLEMENT DECISION, EVALUATE THE TECHNOLOGIES THROUGH SIMULATION AND OPERATIONAL ASSESSMENTS.	PM	FSD
1.13/1.14/7.12	01046	WHAT SYSTEMS ARE AUTOMATED AND HOW SPECIFIC AUTOMATION ACCOMMODATES SINGLE CREW MEMBER OPERATION HAS NOT BEEN COMPLETELY ASSESSED. HF DESIGN STANDARDS DO NOT FULLY ADDRESS ISSUES AND TRADE-OFFS IN AUTOMATION AND COGNITIVE OVERLOAD.	IF MAN-MACHINE INTEGRATION WITH AUTOMATED SYSTEMS IS NOT FULLY DEVELOPED, SINGLE CREW MEMBER LHX MISSION ACCOMPLISHMENT AND SURVIVABILITY WILL BE GREATLY REDUCED.	ACCELERATE DEVELOPMENT OF CRITICAL INFORMATION PROCESSING TECHNOLOGIES. CONDUCT ANALYSIS, SIMULATION AND EVALUATIONS TO ASSESS CAPABILITIES. REVISE HF DESIGN STANDARDS. DEVELOP EFFECTIVE TRAINING	PM	FSD

EHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(lister.prg)

CRITICAL QUESTION NO	ISSUE CODE	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED
1.14/7.11/7.12	01042	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	IF PART OF THE MISSION EQUIPMENT CAPABILITY IS DISABLED, THE PILOT MAY BE UNABLE TO COMPLETE THE MISSION AND/OR RETURN HOME.	PERFORM ANALYSES, SIMULATION AND OPERATIONAL EVALUATION TO ASSURE THAT THE SYSTEM DESIGN PROVIDES SUFFICIENT FLEXIBILITY FOR MISSION SUCCESS.	PM	OT II
1.15	01044	HOW CAN IN-FLIGHT DATA ENTRY SYSTEMS REDICE WORKLOAD TO LEVELS REQUIRED FOR SUCCESSFUL OPERATIONS?	AVIATOR MAY NEED TO FOCUS ATTENTION ON DATA ENTRY INSIDE THE COCKPIT WHEN HE SHOULD BE CONCENTRATING OUTSIDE.	CONDUCT ASSESSMENT/DEMONSTRATION OF THE CONCEPT TO VALIDATE MANAGEABLE PILOT WORKLOAD.	PM	PRIOR TO FSD
1.16	01045	CAN TECHNOLOGY ACCOMPLISH THE AUTOMATIC FLIGHT CONTROL WHICH IS CRITICAL TO SINGLE CREW MEMBER OPERATION?	WORKLOAD MAY INCREASE TO THE POINT WHERE THE AVIATOR IS UNABLE TO FLY AND FIGHT SIMULTANEOUSLY.	DETERMINE ACTUAL CAPABILITIES OF PROPOSED FLIGHT CONTROL AUTOMATION AND EVALUATE THE CAPABILITY TO ACHIEVE SINGLE CREW MEMBER GOALS.	PM	FSD

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(Master prg)

CRITICAL QUESTION NO.	ISSUE CODE	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED
1.17	01048	THE HUMAN INTERACTION AND WORKLOAD RELATED TO FLYING THE AIRCRAFT WITH A "SIDE-ARM-CONTROLLER" AND CONTROLLING OTHER FUNCTIONS AT THE SAME TIME HAS NOT BEEN FULLY ASSESSED	EFFECTIVE PILOT PERFORMANCE AND MISSION ACCOMPLISHMENT DEPENDS UPON WORKLOAD REDUCTION	EVALUATE THE EFFECTIVENESS OF THE AVIATOR FLYING THE LHX USING A 'SIDE-ARM-CONTROLLER' WHILE CONCURRENTLY CONTROLLING OTHER AIRCRAFT FUNCTIONS.	PM	FSD
1.18/7.08	01049	THE SYSTEM FOR NAVIGATING NOE AT NIGHT AND IN ADVERSE WEATHER CONDITIONS, WHICH REQUIRES A WIDE FIELD OF VIEW WITH SUITABLE SENSITIVITY AND RESOLUTION, IS A HIGH RISK DEVELOPMENT	WITHOUT THIS CAPABILITY, MISSION COMPLETION WILL BE SEVERELY DEGRADED AT NIGHT AND IN ADVERSE WEATHER.	ACCELERATE THE HIGH RISK DEVELOPMENT OF REQUIRED SENSOR AND DISPLAY TECHNOLOGIES. ASSURANCE OF AVAILABLITY AND EFFECTIVENESS SHOULD BE ESTABLISHED PRIOR TO FSD.	PM	FSD
1.19R	01064	WHAT ARE THE CREW STATION DESIGN CRITERIA FOR THE LHX-UTILITY?	ISSUE IMPACTS ON CREW STATION DESIGN, ON PERSONNEL AND TRAINING, UNIT MANNING AND ULTIMATELY, ON MISSION PERFORMANCE	OPTIMUM DESIGN OF CREW STATION DEFINITION OF JOB AND PERSONNEL QUALIFICATION, AND DEVELOPMENT OF APPROPRIATE TRAINING	PM	PRIOR TO OT II
1.20R	01059	CAN SINGLE PILOT OPERATION BE ACHIEVED WITHOUT MILLIMETER WAVE RADAR & INTEGRATED COMMUNICATION, NAVIGATION, IDENTIFICATION AVIONICS?	ABSENCE OF EITHER OR BOTH SYSTEMS MAY RESULT IN MISSION DEGRADATION.	UNKNOWN	PM	P3I PROGRAM
1.20R	01059	CAN SINGLE PILOT OPERATION BE ACHIEVED WITHOUT MILLIMETER WAVE RADAR & INTEGRATED COMMUNICATION, NAVIGATION, IDENTIFICATION AVIONICS?	ABSENCE OF EITHER OR BOTH SYSTEMS MAY RESULT IN MISSION DEGRADATION.	UNKNOWN	PM	P3I PROGRAM

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(lister prg)

CRITICAL QUESTION NO	ISSUE CODE	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED
1.20R	01059	CAN SINGLE PILOT OPERATION BE ACHIEVED WITHOUT MILLIMETER WAVE RADAR & INTEGRATED COMMUNICATION, NAVIGATION, IDENTIFICATION AVIONICS?	ABSENCE OF EITHER OR BOTH SYSTEMS MAY RESULT IN MISSION DEGRADATION.	NONE	PM	P3I PROGRAM
1.21R/4.14R	01037	FULL CAPABILITIES AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCE ACTIVITIES.	COMBAT EFFECTIVENESS OF LHX WILL BE HIGHLY DEPENDENT ON GROUND FACILITIES FOR MISSION PLANNING AND MAINTENANCE	CONDUCT AN IN DEPTH ASSESSMENT OF THE AIRCREW AND MAINTAINER NEEDS AND ESTABLISH DETAILED REQUIREMENTS FOR MISSION PLANNING AND MAINTENANCE WORK STATION CAPABILITIES.	TRADOC	PRIOR TO OT II
2.01/6.03	M1019	THE AMOUNT OF NON-MAINTENANCE TASKS PER INDIVIDUAL MAINTAINER MAY INCREASE AS THE MAINTENANCE POPULATION DECREASES.	UNDERESTIMATED MANPOWER REQUIREMENTS CAUSE INADEQUATE TRAINING SUPPORT STRUCTURE TO BE INITIATED AND CAN CREATE A SEVERAL YEAR LAG IN RECRUITING.	GIVE APPROPRIATE ATTENTION TO NON-MAINTENANCE TASKS IN STAFFING FOR MAINTENANCE IN UNITS.	PM-ILS	OT II
2.04/3.02/1.21R	M1006	FULL CAPABILITIES AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCE ACTIVITIES.	COMBAT EFFECTIVENESS OF LHX WILL BE HIGHLY DEPENDENT ON GROUND FACILITIES FOR MISSION PLANNING AND MAINTENANCE.	CONDUCT AN IN DEPTH ASSESSMENT OF THE AIRCREW AND MAINTAINER NEEDS AND ESTABLISH DETAILED REQUIREMENTS FOR MISSION PLANNING AND MAINTENANCE WORK STATION CAPABILITIES.	TRADOC	PRIOR TO OT II

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(Listed proj)

CRITICAL QUESTION NO	ISSUE CODE	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED
2 04/3 02/1 21R/4 14R	01037	FULL CAPABILITIES AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCE ACTIVITIES	COMBAT EFFECTIVENESS OF LHX WILL BE HIGHLY DEPENDENT ON GROUND FACILITIES FOR MISSION PLANNING AND MAINTENANCE	CONDUCT AN IN DEPTH ASSESSMENT OF THE AIRCREW AND MAINTAINER NEEDS AND ESTABLISH DETAILED REQUIREMENTS FOR MISSION PLANNING AND MAINTENANCE WORK STATION CAPABILITIES.	TRADOC	PRIOR TO OT II
2 04/3 02/4 14R	M1022	FULL CAPABILITIES AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCNE ACTIVITIES	COMBAT EFFECTIVENESS OF LHX WILL BE HIGHLY DEPENDENT ON GROUND FACILITIES FOR MISSION PLANNING AND MAINTENANCE.	CONDUCT AN IN DEPTH ASSESSMENT OF THE AIRCREW AND MAINTAINER NEEDS AND ESTABLISH DETAILED REQUIREMENTS FOR MISSION PLANNING AND MAINTENANCE WORK STATION CAPABILITIES.	TRADOC	PRIOR TO OT II
2 OSR	M1002	CAN ALL UNIT MAINTENANCE FUNCTIONS BE PERFORMED BY NO MORE THAN THREE MOS INCLUDING CREW CHIEF?	POTENTIAL DESIGN TRADE-OFFS IMPACT ON MOS DETERMINATION. POTENTIAL IMPACT ON TRAINING UNIT MANNING AND FORCE STRUCTURE.	MONITOR AIRCRAFT DESIGN. PERFORM TASK & SKILL ANALYSIS. INCLUDE IN QQPRI.	PM/ILS	PRIOR TO FSD
3 02/1 21R/4 14R	01037	FULL CAPABILITIES AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCE ACTIVITIES.	COMBAT EFFECTIVENESS OF LHX WILL BE HIGHLY DEPENDENT ON GROUND FACILITIES FOR MISSION PLANNING AND MAINTENANCE	CONDUCT AN IN DEPTH ASSESSMENT OF THE AIRCREW AND MAINTAINER NEEDS AND ESTABLISH DETAILED REQUIREMENTS FOR MISSION PLANNING AND MAINTENANCE WORK STATION CAPABILITIES.	TRADOC	PRIOR TO OT II

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(luster org)

CRITICAL QUESTION NO.	ISSUE CODE	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED
3.03/3.04	01058	HOW DO PSYCHOMOTOR AND COGNITIVE PERFORMANCE REQUIREMENTS FOR LHX COMPARE WITH THOSE OF AIRCRAFT BEING REPLACED OR OTHER AIRCRAFT IN THE DOD INVENTORY?	IMPACT ON FEASIBILITY OF SINGLE PILOT OPERATION	ARTI RESULTS. ARMY/NASA CREW STATION SIMULATION STUDIES.	PM/HEL	RFP
3.03/3.04/4.0	01003	CAN THE AVAILABLE OPERATORS (PILOTS) BE SUCCESSFULLY TRAINED WITHIN THE TIME, COST OF CURRENT SYSTEMS, AND WITHOUT INCREASING THE CURRENT TRAINING FACILITIES?	THE PROPOSED LHX IS A HIGHLY COMPLEX WEAPONS SYSTEM PLATFORM AND MAY REQUIRE APTITUDES THAT ARE NOT AVAILABLE IN SUFFICIENT QUANTITY AMONG THE POPULATION THAT FEEDS THE PILOT POOL. IF THIS IS TRUE, THEN PILOTS WITH LOWER APTITUDES WOULD HAVE TO BE ACCESSED AND TRAINING TIME AND COSTS INCREASED CORRESPONDINGLY.	(UNKNOWN)	TRADOC	PRIOR TO FSD
3.04	01058	HOW DO PSYCHOMOTOR AND COGNITIVE PERFORMANCE REQUIREMENTS FOR LHX COMPARE WITH THOSE OF AIRCRAFT BEING REPLACED OR OTHER AIRCRAFT IN THE DOD INVENTORY?	IMPACT ON FEASIBILITY OF SINGLE PILOT OPERATION	ARTI RESULTS. ARMY/NASA CREW STATION SIMULATION STUDIES.	PM/HEL	RFP
3.04/4.0	01003	(APTITUDES) CAN THE AVAILABLE OPERATORS (PILOTS) BE SUCCESSFULLY TRAINED WITHIN THE TIME, COST OF CURRENT SYSTEMS, AND WITHOUT INCREASING THE CURRENT TRAINING FACILITIES?	THE PROPOSED LHX IS A HIGHLY COMPLEX WEAPONS SYSTEM PLATFORM AND MAY REQUIRE APTITUDES THAT ARE NOT AVAILABLE IN SUFFICIENT QUANTITY AMONG THE POPULATION THAT FEEDS THE PILOT POOL. IF THIS IS TRUE, THEN PILOTS WITH LOWER APTITUDES WOULD HAVE TO BE ACCESSED AND TRAINING TIME AND COSTS INCREASED CORRESPONDINGLY.	(UNKNOWN)	TRADOC	PRIOR TO FSD

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(lister prg)

CRITICAL QUESTION NO.	ISSUE CODE	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED
4.01	01002	(SCAT) HOW CAN SCAT TRAINING BE DONE AT THE UNIT LEVEL WITHOUT PROHIBITIVELY EXPENSIVE FIELDING TO UNITS OF A 2-PLACE LHX MODIFICATION?	A 2 PLACE AIRCRAFT PERMITS THE INSTRUCTOR TO OVER-RIDE THE STUDENT WHEN STUDENT GETS INTO TROUBLE. A SINGLE PLACE LHX LACKS THIS BACKUP, RESULTING IN UNRECOVERABLE ERRORS, LOSS OF AIRCRAFT AND LIFE.	(UNKNOWN)	TRADOC	TOA AP U VOL IX TNG
4.02/5.01	M1008	WHAT IS THE IMPACT OF METRIC MEASURE ON MAINTENANCNE AND MAINTENANCE TRAINING?	USE OF METRIC MEASURE COULD PROVE COSTLY AND DELAY THE REPAIR PROCESS ESPECIALLY IF LHX CONTAINS A MIX OF METRIC AND STANDARD SIZES.	CONDUCT PERFORMANCE ANALYSIS TO DETERMINE OVERALL SIGNIFICANCE OF USING METRIC MEASURE. PROVIDE APPROPRIATE TRAINING.	PM	OT II
4.03	01051	WHAT ARE THE UNIT TRAINING REQUIREMENTS FOR OPERATORS AND MAINTAINERS IN TERMS OF INITIAL SKILLS, REQUALIFICATION AND TACTICAL TRAINING?	LESS THAN ADEQUATE TRAINING AT THE UNIT LEVEL WILL REDUCE COMBAT EFFECTIVENESS.	CONTINUE ONGOING ANALYSIS AND RESOLVE ISSUE PRIOR TO FSD.	TRADOC	PRIOR TO FSD
4.03	M1010	WHAT ARE THE UNIT TRAINING REQUIREMENTS FOR OPERATORS AND MAINTAINERS IN TERMS OF INITIAL SKILLS, REQUALIFICATION AND TACTICAL TRAINING?	LESS THAN ADEQUATE TRAINING AT THE UNIT LEVEL WILL REDUCE COMBAT EFFECTIVENESS.	CONTINUE ONGOING ANALYSIS AND RESOLVE ISSUE PRIOR TO FSD.	TRADOC	PRIOR TO FSD
4.03	S1003	WHAT ARE THE UNIT TRAINING REQUIREMENTS FOR OPERATORS AND MAINTAINERS IN TERMS OF INITIAL SKILLS, REQUALIFICATION AND TACTICAL TRAINING?	LESS THAN ADEQUATE TRAINING AT THE UNIT LEVEL WILL REDUCE COMBAT EFFECTIVENESS.	CONTINUE ONGOING ANALYSIS AND RESOLVE ISSUE PRIOR TO FSD.	TRADOC	PRIOR TO FSD

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(lister prg)

CRITICAL QUESTION NO.	ISSUE CODE	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED
4.04/4.05	M1015	WHAT IMPACT DOES TWO LEVEL MAINTENANCE HAVE ON INSTITUTIONAL AND UNIT LEVEL MAINTENANCE TRAINING DURING LHX 'PHASE IN' PERIOD AND WHEN STEADY STATE CONDITIONS ARE REACHED?	TWO LEVEL MAINTENANCE MAY INCREASE UNIT TRAINING BURDEN DURING PHASE-IN. ADDITIONAL LHX REQUIREMENTS MAY INCREASE SELECTED MOS TRAINING.	COMPLETE ONGOING ANALYSES (CTEA, ICTP, TWO LEVEL MAINTENANCE) AND RESOLVE ISSUE PRIOR TO FSD.	PM/ILS	PRIOR TO PRODUCTION
4.05	M1015	WHAT IMPACT DOES TWO LEVEL MAINTENANCE HAVE ON INSTITUTIONAL AND UNIT LEVEL MAINTENANCE TRAINING DURING LHX 'PHASE IN' PERIOD AND WHEN STEADY STATE CONDITIONS ARE REACHED?	TWO LEVEL MAINTENANCE MAY INCREASE UNIT TRAINING BURDEN DURING PHASE-IN ADDITIONAL LHX REQUIREMENTS MAY INCREASE SELECTED MOS TRAINING	COMPLETE ONGOING ANALYSES (CTEA, ICTP, TWO LEVEL MAINTENANCE) AND RESOLVE ISSUE PRIOR TO FSD.	PM/ILS	PRIOR TO PRODUCTION
4.06	01052	IS THE TRAINING PLAN ADEQUATE TO SUPPORT LHX FIELDING AT THE PROJECTED RATE?	MISMATCH BETWEEN AVAILABILITY OF AIRCRAFT AND AVAILABILITY OF TRAINED PERSONNEL CAN DELAY LHX DEPLOYMENT.	COMPLETE ONGOING ANALYSES (BOIP, ICTP, CONTRACTORS) AND RESOLVE ISSUE PRIOR TO FSD.	PM/TRADOC	PRIOR TO FSD
4.05	M1011	IS THE TRAINING PLAN ADEQUATE TO SUPPORT LHX FIELDING AT THE PROJECTED RATE?	MISMATCH BETWEEN AVAILABILITY OF AIRCRAFT AND AVAILABILITY OF TRAINED PERSONNEL CAN DELAY LHX DEPLOYMENT.	COMPLETE ONGOING ANALYSES (BOIP, ICTP, CONTRACTORS) AND RESOLVE ISSUE PRIOR TO FSD.	PM/TRADOC	PRIOR TO FSD

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(lister.org)

CRITICAL QUESTION NO	ISSUE CODE	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED
4.06	S1004	IS THE TRAINING PLAN ADEQUATE TO SUPPORT LHX FIELDING AT THE PROJECTED RATE?	MISMATCH BETWEEN AVAILABILITY OF AIRCRAFT AND AVAILABILITY OF TRAINED PERSONNEL CAN DELAY LHX DEPLOYMENT.	COMPLETE ONGOING ANALYSES (BOIP, ICTP, CONTRACTORS) AND RESOLVE ISSUE PRIOR TO FSD.	PM/TRADOC	PRIOR TO FSD
4.07	01050	AS THE LHX ENTERS THE INVENTORY CURRENT TRAINING AIRCRAFT MAY BE REPLACED BY LHX. THE LHX TRAINING PROGRAM/SYSTEM/AIRCRAFT SHOULD BE ESTABLISHED TO INCLUDE IERW.	DESIGNATING THE LHX AS PRIMARY TRAINER FOR ALL IERW EARLIER IN THE PROGRAM MAY DECREASE LONG TERM TRAINING COSTS.	COMPLETE ONGOING ANALYSIS (CTEA) AND RESOLVE ISSUE PRIOR TO FSED.	TRADOC	PRIOR TO FSD
4.08	01054	WILL THE LHX DESIGN TAKE ADVANTAGE OF COMPUTER ASSISTED TRAINING EMBEDDED TRAINING) TECHNOLOGIES FOR INITIAL AND UNIT TRAINING?	ADVANCES IN TRAINING TECHNOLOGY MAY REDUCE INSTRUCTOR REQUIREMENTS, IMPROVE TRAINING QUALITY CONTROL REDUCE INITIAL TRAINING TIME AND IMPROVE TRAINING IN UNITS.	COMPLETE ONGOING ANALYSES (CTEA, CONTRACTOR) AND RESOLVE ISSUE PRIOR TO FSED.	PM	FSD
4.08	M1013	WILL THE LHX DESIGN TAKE ADVANTAGE OF COMPUTER ASSISTED TRAINING EMBEDDED TRAINING) TECHNOLOGIES FOR INITIAL AND UNIT TRAINING?	ADVANCES IN TRAINING TECHNOLOGY MAY REDUCE INSTRUCTOR REEQUIREMENTS, IMPROVE TRAINING QUALITY CONTROL REDUCE INITIAL TRAINING TIME AND IMPROVE TRAINING IN UNITS.	COMPLETE ONGOING ANALYSES (CTEA, CONTRACTOR) AND RESOLVE ISSUE PRIOR TO FSD.	PM	FSD

CHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(lister prg)

CRITICAL QUESTION NO.	ISSUE CODE	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED
4.08/4.12R	01020	HOW CAN THE USE OF NEW TECHNOLOGY SIMPLIFY AND REDUCE TRAINING REQUIRMENTS?	POTENTIAL FOR IMPROVED TRAINING IN LESS TIME AND LOWER COSTS	(UNKNOWN)	TRADOC	PUBLICATION OF CTEA
4.09	M1018	ANALYSES OF MAINTENANCE TRAINING ARE COMPLICATED BY THE PROSPECT OF ALTERATIONS IN MAINTENANCE MOS'S 2-LEVEL MAINTENANCE AND HARDWARE INNOVATIONS.	MAINTENANCE TRAINING REQUIREMENTS CANNOT YET BE FIRMLY STATED.	CONTINUE ASSESSMENT BEYOND CONCEPT DEVELOPMENT UNTIL NEEDED INFORMATION IS AVAILABLE.	PM-ILS	PRIOR TO OT II
4.09/2.05R	M1002	CAN ALL UNIT MAINTENANCE FUNCTIONS BE PERFORMED BY NO MORE THAN THREE MOS INCLUDING CREW CHIEF?	POTENTIAL DESIGN TRADE-OFFS IMPACT ON MOS DETERMINATION. POTENTIAL IMPACT ON TRAINING UNIT MANNING AND FORCE STRUCTURE.	MONITOR AIRCRAFT DESIGN. PERFORM TASK & SKILL ANALYSIS. INCLUDE IN QQPRI.	PM/ILS	PRIOR TO FSD
4.10R	01032	WHAT ARE THE TRAINING REQUIREMENTS FOR THE SECOND CREW MEMBER IN THE UTILITY AIRCRAFT? WHAT ARE THE CREW STATION DESIGN CRITERIA?	ISSUE IMPACTS ON CREW STATION DESIGN, ON PERSONNEL AND TRAINING, UNIT MANNING AND ULTIMATELY, ON MISSION PERFORMANCE	OPTIMUM DESIGN OF CREW STATION, DEFINITION OF JOB AND PERSONNEL QUALIFICATION, AND DEVELOPMENT OF APPROPRIATE TRAINING	TRADOC	PRIOR TO OT II
4.11R	01019	CAN TRAINING INCREASE THE SCAT PILOT'S ABILITY TO PERFORM UNDER HIGH TASK LOADING?	APPROPRIATE TRAINING CAN IMPROVE PILOT'S PERFORMANCE UNDER HIGH WORKLOAD CONDITIONS	(UNKNOWN)	TRADOC	OT II

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(lister prg)

CRITICAL QUESTION NO	ISSUE CODE	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED
4.12R	O1020	HOW CAN THE USE OF NEW TECHNOLOGY SIMPLIFY AND REDUCE TRAINING REQUIRMENTS?	POTENTIAL FOR IMPROVED TRAINING IN LESS TIME AND LOWER COSTS	(UNKNOWN)	TRADOC	PUBLICATION OF CTEA
4.13R	O1057	WHAT ARE THE TRAINING REQUIREMENTS FOR PERSONNEL OF OTHER AIRCRAFT STATIONED WITH THE LHX?	WITHOUT ADEQUATE ATTENTION TO THE IMPACT OF LHX INTEGRATION INTO UNITS, UNIT EFFECTIVENESS MAY SUFFER (A)	CONTINUE ANALYSIS FROM TOTAL SYSTEM PERSPECTIVE TO ENSURE THAT UNNECESSARY REDUNDANCIES AND CRITICAL TRAINING VOIDS ARE AVOIDED.	TRADOC	PRIOR TO FIELDING
4.13R	M1024	WHAT ARE THE TRAINING REQUIREMENTS FOR PERSONNEL OF OTHER AIRCRAFT STATIONED WITH THE LHX?	WITHOUT ADEQUATE ATTENTION TO THE IMPACT OF LHX INTEGRATION INTO UNITS, UNIT EFFECTIVENESS MAY SUFFER (A).	CONTINUE ANALYSIS FROM TOTAL SYSTEM PERSPECTIVE TO ENSURE THAT UNNECESSARY REDUNDANCIES AND CRITICAL TRAINING VOIDS ARE AVOIDED.	TRADOC	PRIOR TO FIELDING
4.13R	S1008	WHAT ARE THE TRAINING REQUIREMENTS OF OTHER AIRCRAFT (AVIATORS, CREWS, MAINTENANCE) STATIONED WITH THE LHX?	WITHOUT ADEQUATE ATTENTION TO THE IMPACT OF LHX INTEGRATION INTO UNITS, UNIT EFFECTIVENESS MAY SUFFER (A)	CONTINUE ANALYSIS FROM TOTAL SYSTEM PERSPECTIVE TO ENSURE THAT UNNECESSARY REDUNDANCIES AND CRITICAL TRAINING VOIDS ARE AVOIDED.	TRADOC	PRIOR TO FIELDING
4.14R	O1037	FULL CAPABILITIES AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCE ACTIVITIES.	COMBAT EFFECTIVENESS OF LHX WILL BE HIGHLY DEPENDENT ON GROUND FACILITIES FOR MISSION PLANNING AND MAINTENANCE	CONDUCT AN IN DEPTH ASSESSMENT OF THE AIRCREW AND MAINTAINER NEEDS AND ESTABLISH DETAILED REQUIREMENTS FOR MISSION PLANNING AND MAINTENANCE WORK STATION CAPABILITIES.	TRADOC	PRIOR TO OT II
5.01	M1008	WHAT IS THE IMPACT OF METRIC MEASURE ON MAINTENANCNE AND MAINTENANCE TRAINING?	USE OF METRIC MEASURE COULD PROVE COSTLY AND DELAY THE REPAIR PROCESS ESPECIALLY IF LHX CONTAINS A MIX OF METRIC AND STANDARD SIZES.	CONDUCT PERFORMANCE ANALYSIS TO DETERMINE OVERALL SIGNIFICANCE OF USING METRIC MEASURE. PROVIDE APPROPRIATE TRAINING.	PM	OT II

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(lister prg)

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5 02	01047	AN INTEGRATED APPROACH TO CREW STATION LIGHTING IS NEEDED. LIGHTING FOR MAINTENANCE AND FARP HAS NOT BEEN FULLY EVALUATED	CREWSTATION, MAINTENANCE AND FARP LIGHTING HAVE A CRITICAL IMPACT ON THE AIRCREW'S ABILITY TO ACCOMPLISH THE COMBAT MISSION.	PERFORM CREWSTATION LIGHTING ANALYSIS THAT ADDRESSES THE UNIQUE ASPECT OF CREW STATION EQUIPMENT AND PROTECTIVE DEVICES. INCLUDE MAINTENANCE AND FARP ACTIVITIES TO INSURE A FULLY INTEGRATED SYSTEM FOR LHX.	PM	FSD
5.03	M1009	AN INTEGRATED APPROACH TO CREW STATION LIGHTING IS NEEDED. LIGHTING FOR MAINTENANCE AND FARP HAS NOT BEEN FULLY EVALUATED.	CREWSTATION, MAINTENANCE AND FARP LIGHTING HAVE A CRITICAL IMPACT ON THE AIRCREW'S ABILITY TO ACCOMPLISH THE COMBAT MISSION.	PERFORM CREWSTATION LIGHTING ANALYSIS THAT ADDRESSES THE UNIQUE ASPECT OF CREW STATION EQUIPMENT AND PROTECTIVE DEVICES. INCLUDE MAINTENANCE AND FARP ACTIVITIES TO INSURE A FULLY INTEGRATED SYSTEM FOR LHX.	PM	FSD
5 04	S1002	AN INTEGRATED APPROACH TO CREW STATION LIGHTING IS NEEDED. LIGHTING FOR MAINTENANCE AND FARP HAS NOT BEEN FULLY EVALUATED.	CREWSTATION, MAINTENANCE AND FARP LIGHTING HAVE A CRITICAL IMPACT ON THE AIRCREW'S ABILITY TO ACCOMPLISH THE COMBAT MISSION.	PERFORM CREWSTATION LIGHTING ANALYSIS THAT ADDRESSES THE UNIQUE ASPECT OF CREW STATION EQUIPMENT AND PROTECTIVE DEVICES. INCLUDE MAINTENANCE AND FARP ACTIVITIES TO INSURE A FULLY INTEGRATED SYSTEM FOR LHX	PM	FSD
5 05/5.06/5.07/5.08	M1017	DOES THE LHX SYSTEM DESIGN ADEQUATELY CONSIDER HUMAN FACTORS IN MAINTENANCE (E.G. ACCESSIBILITY, PROTECTIVE CLOTHING COMPOSITE MATERIAL REPAIR, ETC)?	FAILURE TO DESIGN FOR EASE OF MAINTENANCE UNDER ADVERSE OPERATIONAL CONDITIONS AND ENVIRONMENTS CAN DEGRADE SYSTEM AVAILABILITY, INCREASE MAINTENANCE TRAINING TIME, AND INCREASE MENTAL CATEGORY REQUIREMENTS FOR SPECIFIC MOS'S.	CONDUCT EARLY ANALYSIS TO RESOLVE ISSUE.	PM	PRIOR TO FSD
5 05 7.03	M1003	NBC AND COLD WEATHER PROTECTIVE CLOTHING CAN HAVE AN ADVERSE IMPACT ON SOLDIER PERFORMANCE.	POTENTIAL REDUCTION IN SOLDIER PERFORMANCE AND MISSION SUCCESS.	ASSURE THAT THE LHX DESIGN IS COMPATIBLE WITH PROTECTIVE CLOTHING. PLACE HIGH PRIORITY ON NBC/COLD WEATHER EQUIPMENT DEVELOPMENT.	PM	OT II

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(lister.prg)

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5.07/5.08	M1017	DOES THE LHX SYSTEM DESIGN ADEQUATELY CONSIDER HUMAN FACTORS IN MAINTENANCE (E.G. ACCESSIBILITY, PROTECTIVE CLOTHING COMPOSITE MATERIAL REPAIR, ETC)?	FAILURE TO DESIGN FOR EASE OF MAINTENANCE UNDER ADVERSE OPERATIONAL CONDITIONS AND ENVIRONMENTS CAN DEGRADE SYSTEM AVAILABILITY, INCREASE MAINTENANCE TRAINING TIME, AND INCREASE MENTAL CATEGORY REQUIREMENTS FOR SPECIFIC MOS'S.	CONDUCT EARLY ANALYSIS TO RESOLVE ISSUE.	PM	PRIOR TO FSD
5.08	M1017	DOES THE LHX SYSTEM DESIGN ADEQUATELY CONSIDER HUMAN FACTORS IN MAINTENANCE (E.G. ACCESSIBILITY, PROTECTIVE CLOTHING COMPOSITE MATERIAL REPAIR, ETC)?	FAILURE TO DESIGN FOR EASE OF MAINTENANCE UNDER ADVERSE OPERATIONAL CONDITIONS AND ENVIRONMENTS CAN DEGRADE SYSTEM AVAILABILITY, INCREASE MAINTENANCE TRAINING TIME, AND INCREASE MENTAL CATEGORY REQUIREMENTS FOR SPECIFIC MOS'S.	CONDUCT EARLY ANALYSIS TO RESOLVE ISSUE.	PM	PRIOR TO FSD
5.09	01053	PRODUCT IMPROVEMENT MUST BE FULLY INTEGRATED TO ASSURE IMPROVED SYSTEM PERFORMANCE	PILOT AND MAINTENANCE WORKLOAD MUST NOT BE INCREASED AT THE EXPENSE OF MISSION PERFORMANCE	ASSURE THAT THE KNOWN PREPLANNED PRODUCTION IMPROVEMENTS ARE INTEGRATED INTO THE LHX SYSTEM DESIGN.	PM	START OF P3I PROGRAM

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(listem prg)

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5.09	M1012	PRODUCT IMPROVEMENT MUST BE FULLY INTGEGRATED TO ASSURE IMPROVED SYSTEM PERFORMANCE	PILOT AND MAINTENANCE WORKLOAD MUST NOT BE INCREASED AT THE EXPENSE OF MISSION PERFORMANCE	ASSURE THAT THE KNOWN PREPLANNED PRODUCTION IMPROVEMENTS ARE INTEGRATED INTO THE LHX SYSTEM DESIGN.	PM	START OF P3I PROGRAM
5.10	S1005	REQUIRED TURN AROUND TIME IN FARP IS 15 MINUTES WITHOUT GHE. REARMING IS TO BE DONE WITH TWO SOLDIERS PER AIRCRAFT.	LESS THAN ADEQUATE TRAINING AT THE UNIT LEVEL WILL REDUCE COMBAT EFFECTIVENESS	DESIGN LHX FUEL AND WEAPONS PLATFORM / INTERFACE TO ACHIEVE MISSION REQUIREMENTS CONSIDER AMMUNITION PACKAGING ENHANCE.	LOG CEN	OT II
5.15	01056	ANTHROPOMETRIC REQUIREMENTS HAVE NOT BEEN ESTABLISHED FOR THE LHX.	ANTHROPOMETRIC REQUIREMENTS HAVE A SIGNIFICANT EFFECT ON CONTROLS AND DISPLAYS, SEATING ADJUSTMENTS AND HELMET SIZING.	ANTHROPOMETRIC REQUIREMENTS ARE ESTABLISHED IN 1ST DRAFT RFP	PM	RFP
6.01/7.10	01024	FATIGUE, STRESS AND ANXIETY MAY DEGRADE SINGLE CREW MEMBER PERFORMANCE ESPECIALLY IN DEGRADED MODES OF OPERATION.	FATIGUE/STRESS/ANXIETY HAVE GREATER IMPACT ON PERFORMANCE WITHOUT A 'BUDDY' PRESENT.	INTEGRATED, AUTOMATED COCKPIT DESIGN WORKLOAD EVALUATIONS, APPROPRIATE TRAINING	USAARL	OT II
6.01/7.10	01009	HOW SUCCESSFULLY DOES THE CURRENT LHX DESIGN DEAL WITH HUMAN FACTORS ISSUES IN COGNITIVE OVERLOAD AND PILOT FATIGUE DURING COMBAT OPERATIONS, CONTINUOUS OPERATION, AND NBC OPERATIONS?	COGNITIVE OVERLOAD. IF HUMAN FACTORS ARE NOT ADDRESSED IN THE FORM OF DESIGN CRITERIA, THE EFFECTIVENESS OF THE SYSTEM MAY SUFFER.	(UNKNOWN)	PM	OT II

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
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6.02	01025	PROLONGED EXPOSURE TO WHOLE BODY VIBRATION MAY HAVE AN UNDESIRABLE IMPACT ON THE AIRCREW	EXCESSIVE VIBRATION LEVELS COULD DEGRADE CREW PERFORMANCE AND MISSION SUCCESS.	DESIGN LHX WITHIN LIMITS OF MIL-STD 1472C, PARA 5.8.9.1.1	USAARL	TT
7.01	01026	CURRENT FIRE EXTINGUISHING SYSTEMS OFTEN USE HALON 1301 WHICH CAN HAVE ADVERSE HEALTH EFFECTS ON PERSONNEL.	HALON 1301 COULD HAVE AN IMPACT ON PERSONNEL WHEN USED IN CONFINED SPACES SUCH AS CREW STATIONS AND PASSENGER COMPARTMENTS	EVALUATE POTENTIAL FIRE EXTINGUISHING SYSTEMS TO ALLEVIATE HEALTH HAZARDS ASSOCIATED WITH HALON 1301	PM	TT
7.02	01027	INADEQUATE VENTILATION, HEATING OR COOLING COULD ADVERSELY AFFECT CREW AND PASSENGER PEFORMANCE AND COULD CREATE A HEALTH HAZARD	TEMPERATURE EXTREMES AND/OR CONTAMINATION CAN IMPACT CREW AND PASSENGER PERFORMANCE	PROVIDE A HYBRID PRESSURIZED PROTECTIVE SYSTEM TO PREVENT ADVERSE EFFECTS ON ENVIRONMENTAL CONDITIONS AND/OR COMBAT CONTAMINATION.	PM	FSD
7.03	01028	NBC AND COLD WEATHER PROTECTIVE CLOTHING CAN HAVE AN ADVERSE IMPACT ON SOLDIER PERFORMANCE.	POTENTIAL REDUCTION IN SOLDIER PERFORMANCE AND MISSION SUCCESS	ASSURE THAT THE LHX DESIGN IS COMPATIBLE WITH PROTECTIVE CLOTHING. PLACE HIGH PRIORITY ON NBC/COLD WEATHER EQUIPMENT DEVELOPMENT.	PM	OT II

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7.03	M1003	NBC AND COLD WEATHER PROTECTIVE CLOTHING CAN HAVE AN ADVERSE IMPACT ON SOLDIER PERFORMANCE	POTENTIAL REDUCTION IN SOLDIER PERFORMANCE AND MISSION SUCCESS.	ASSURE THAT THE LHX DESIGN IS COMPATIBLE WITH PROTECTIVE CLOTHING. PLACE HIGH PRIORITY ON NBC/COLD WEATHER EQUIPMENT DEVELOPMENT.	PM	OT II
7.04	01029	CRASHWORTHINESS OF LHX IS DEFINED AS "MODIFIED" MIL-STD-1290, HOWEVER, EXTENT OF MODIFICATION IS UNDEFINED.	IMPROVED CRASHWORTHINESS WILL REDUCE INJURIES, DEATHS AND AIRCRAFT LOSSES	DEFINE THE "MODIFIED " MIL-STD-1290 CRITERIA PRIOR TO START OF FSED.	PM	PRIOR TO FSD
7.05	01030	STEADY STATE AND IMPULSE NOISE LEVELS OF THE LHX MAY DEGRADE AIR AND GROUND CREWS' PERFORMANCE AND MAY POSE HEALTH HAZARDS.	DEGRADED CREW PERFORMANCE AND/OR INJURY COULD ADVERSELY IMPACT MISSION ACCOMPLISHMENT.	DESIGN LHX TO MEET APPROPRIATE NOISE LIMITS OF MIL-STD-1204, TB-MED-501 AND MIL-STD-1474. PROVIDE AIR AND GROUND CREWS WITH HEARING PROTECTION EQUAL TO OR BETTER THAN THE SPH-4 HELMET.	PM	TT
7.05	M1004	STEADY STATE AND IMPULSE NOISE LEVELS OF THE LHX MAY DEGRADE AIR AND GROUND CREWS' PERFORMANCE AND MAY POSE HEALTH HAZARDS.	DEGRADED CREW PERFORMANCE AND/OR INJURY COULD ADVERSLY IMPACT MISSION ACCOMPLISHMENT.	DESIGN LHX TO MEET APPROPRIATE NOISE LIMITS OF MIL-STD-1294, TB-MED-251 AND MIL-STD-1474. PROVIDE AIR AND GROUND CREWS WITH HEARING PROTECTION EQUAL TO OR BETTER THAN THE SPH-4 HELMET.	PM	TT

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(lister.prg)

CRITICAL QUESTION NO	ISSUE CODE	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED
7.06	01031	LASERS AND IR RADIATION CAN PRODUCE VISUAL DAMAGE DURING COMBAT AND TRAINING. RF AND MICROWAVE EXPOSURES ARE POTENTIAL HEALTH HAZARDS.	POTENTIAL AIR AND GROUND CREW CASUALTIES AND DEGRADED MISSION PERFORMANCE.	EQUIPMENT SHOULD COMPLY WITH MIL-STD 1425, AR40-46 AND AR40-583. LASERS SHOULD HAVE A SAFE MODE FOR USE DURING TRAINING. AIR AND GROUND CREW TRAINING IN SAFE OPERATION AND MAINTENANCE.	PM	TT
7.06	M1005	LASERS AND IR RADIATION CAN PRODUCE VISUAL DAMAGE DURING COMBAT AND TRAINING. RF AND MICROWAVE EXPOSURES ARE POTENTIAL HEALTH HAZARDS	POTENTIAL AIR AND GROUND CREW CASUALTIES AND DEGRADED MISSION PERFORMANCE	EQUIPMENT SHOULD COMPLY WITH MIL-STD 1425, AR40-46 AND AR40-583. LASERS SHOULD HAVE A SAFE MODE FOR USE DURING TRAINING. AIR AND GROUND CREW TRAINING IN SAFE OPERATION AND MAINTENANCE.	PM	TT
7.07	01041	IS THE SINGLE CREWMEMBER LHX MORE OR LESS SURVIVABLE THAN A TWO CREWMEMBER AIRCRAFT?	MISSION ACCOMPLISHMENT AND REDUCTION OF AVIATION ASSET LOSSES DEPEND UPON HIGH SURVIVABILITY	PRIOR TO FINAL CREW COMPLEMENT DECISION, COMPLETE THE SURVIVABILITY ANALYSIS RELATED TO CREW SIZE AS PART OF THE TRADOC COEA.	PM	TT
7.08	01049	THE SYSTEM FOR NAVIGATING NOE AT NIGHT AND IN ADVERSE WEATHER CONDITIONS, WHICH REQUIRES A WIDE FIELD OF VIEW WITH SUITABLE SENSITIVITY AND RESOLUTION, IS A HIGH RISK DEVELOPMENT.	WITHOUT THIS CAPABILITY, MISSION COMPLETION WILL BE SEVERELY DEGRADED AT NIGHT AND IN ADVERSE WEATHER.	ACCELERATE THE HIGH RISK DEVELOPMENT OF REQUIRED SENSOR AND DISPLAY TECHNOLOGIES. ASSURANCE OF AVAILABLITY AND EFFECTIVENESS SHOULD BE ESTABLISHED PRIOR TO FSD	PM	FSD

LHX ISSUES DATA BASE LISTING, Or MEMO FIELDS
(lister.prg)

CRITICAL QUESTION NO	ISSUE CODE	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED
7 09	M1016	WILL THE FATIGUE AND STRESS FROM THE MAINTENANCE BURDEN OF SUSTAINED CONTINUOUS OPERATIONS ADVERSELY AFFECT MISSION ACCOMPLISHMENT?	FATIGUE AND STRESS CAN INCREASE ERROR RATES AND TIME TO ACCOMPLISH TASKS. EXCESSIVE FATIGUE AND STRESS MAY ADVERSELY AFFECT MISSION ACCOMPLISHMENT	COMPLETE ONGOING ANALYSES (EG HARDMAN, LSA/LSAR, TWO LEVEL MAINTENANCE, CONTRACTOR TRAINING ANALYSIS.)	PM	OT II
7 10	01009	HOW SUCCESSFULLY DOES THE CURRENT LHX DESIGN DEAL WITH HUMAN FACTORS ISSUES IN COGNITIVE OVERLOAD AND PILOT FATIGUE DURING COMBAT OPERATIONS, CONTINUOUS OPERATION, AND NBC OPERATIONS?	COGNITIVE OVERLOAD. IF HUMAN FACTORS ARE NOT ADDRESSED IN THE FORM OF DESIGN CRITERIA, THE EFFECTIVENESS OF THE SYSTEM MAY SUFFER.	(UNKNOWN)	PM	OT II
7 10	01024	FATIGUE, STRESS AND ANXIETY MAY DEGRADE SINGLE CREW MEMBER PERFORMANCE ESPECIALLY IN DEGRADED MODES OF OPERATION	FATIGUE/STRESS/ANXIETY HAVE GREATER IMPACT ON PERFORMANCE WITHOUT A 'BUDDY' PRESENT.	INTEGRATED, AUTOMATED COCKPIT DESIGN WORKLOAD EVALUATIONS, APPROPRIATE TRAINING	USAARL	OT II
7 10	S1006	WILL THE FATIGUE AND STRESS FROM THE MAINTENANCE BURDEN OF SUSTAINED CONTINUOUS OPERATIONS ADVERSELY AFFECT MISSION ACCOMPLISHMENT?	FATIGUE AND STRESS CAN INCREASE ERROR RATES AND TIME TO ACCOMPLISH TASKS. EXCESSIVE FATIGUE AND STRESS MAY ADVERSELY AFFECT MISSION ACCOMPLISHMENT.	COMPLETE ONGOING ANALYSES (EG HARDMAN, LSA/LSAR, TWO LEVEL MAINTENANCE, CONTRACTOR TRAINING ANALYSIS) AND RESOLVE ISSUE PRIOR TO FSD.	PM	OT II
7 11/7 12	01042	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	IF PART OF THE MISSION EQUIPMENT CAPABILITY IS DISABLED, THE PILOT MAY BE UNABLE TO COMPLETE THE MISSION AND/OR RETURN HOME.	PERFORM ANALYSES, SIMULATION AND OPERATIONAL EVALUATION TO ASSURE THAT THE SYSTEM DESIGN PROVIDES SUFFICIENT FLEXIBILITY FOR MISSION SUCCESS.	PM	OT II

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(lister prg)

CRITICAL QUESTION NO	ISSUE CODE	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED
[illegible]	01042	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	IF PART OF THE MISSION EQUIPMENT CAPABILITY IS DISABLED, THE PILOT MAY BE UNABLE TO COMPLETE THE MISSION AND/OR RETURN HOME	PERFORM ANALYSES, SIMULATION AND OPERATIONAL EVALUATION TO ASSURE THAT THE SYSTEM DESIGN PROVIDES SUFFICIENT FLEXIBILITY FOR MISSION SUCCESS.	PM	OT II
[illegible]	01046	WHAT SYSTEMS ARE AUTOMATED AND HOW SPECIFIC AUTOMATION ACCOMMODATES SINGLE CREW MEMBER OPERATION HAS NOT BEEN COMPLETELY ASSESSED. HF DESIGN STANDARDS DO NOT FULLY ADDRESS ISSUES AND TRADE-OFFS IN AUTOMATION AND COGNITIVE OVERLOAD.	IF MAN-MACHINE INTEGRATION WITH AUTOMATED SYSTEMS IS NOT FULLY DEVELOPED, SINGLE CREW MEMBER LHX MISSION ACCOMPLISHMENT AND SURVIVABILITY WILL BE GREATLY REDUCED.	ACCELERATE DEVELOPMENT OF CRITICAL INFORMATION PROCESSING TECHNOLOGIES. CONDUCT ANALYSIS, SIMULATION AND EVALUATIONS TO ASSESS CAPABILITIES. REVISE HF DESIGN STANDARDS. DEVELOP EFFECTIVE TRAINING.	PM	FSD

Issues Reported by
TYPECODE and CRITICALITY SCORE Sequence

The following listing is shown in a sequence which displays the records first by the TYPECODE (Operator O=1, Maintainer M=2, and Support S=3), then sorts them within each type code class by the CIRTTICALITY SCORE (CRITSCR: Essential=E, High=H, Medium=M, Low=L). Issues in the operation domain will be shown first, arranged so that the issues with E CRITSCRs will appear first. This listing helps to find those operator issues which urgently need to be solved.

MANPRINT SMMP CRITICAL QUESTION REPORT (ISREP 1)
(SEQUENCED ON CRITICALITY WITHIN MANPRINT DOMAIN)
OPERATOR = 1, MAINTAINER = 2, SUPPORT = 3
(INDEXED ON TYPEDD + DSCD)

SMMP CRITICAL QUESTION NUMBER	OPER=1 MAIN=2 SUPT=3	CRITICAL QUESTION	ALLEN DERIVED ISSUE	DOCUMENTATION SUPPORTING ISSUE SELECTION	RESPONSIBLE AGENCY	WHEN RESOLVED	SOURCE DOCUMENT IDNO	PAGE/PARA IN SOURCE DOCUMENT	CRITICALITY SCORE	SOURCE OF SOLUTION	RISK	MANPRINT DOMAIN	STATUS
1.0	1	IS SINGLE PILOT OPERABILITY FEASIBLE?	CAN A SINGLE PILOT OPERATE THE LHX IN THE GIVEN OPERATIONAL MODE SUMMARY AND MISSION PROFILES?	R1007 GUIDANCE LETTER, LHX MILESTONE I/II, DECISION REVIEW BY ASARC.DAMA-RA 21 NOV 85 ENCL 6,ENCL 8.. R1001 O&O "THE LHX OPERATIONAL MODE SUMMARY IN ANNEX A/B..	PM	OT II	R1002	PAR 5, ESSENTIAL CHARACTERISTICS a(3) AND ANNEX B TO LOA, AND PAR 4 OF O&O (R1001) GUIDANCE LETTER, LHX MILESTONE I/II, DECISION REVIEW BY ASARC. DAMA-RA 21 NOV 85 (IDNO R1007) ENCL 6, ENCL 8.	E		H A1003 P.R-67 PAR C P.R-35 PAR 2(1)	HF	PEND RFP
	1		CAN A PILOT SUCCESSFULLY ENGAGE OTHER HELICOPTERS IN AIR TO AIR COMBAT WHILE FLYING THE A/C?	R1001 O&O PLAN	PM/TRADOC	OT II	R1001	III OPERATIONAL PLAN, PAR 2 "THESE CAPABILITIES INCLUDE AIR-TO-AIR COMBAT. " III, PAR 4 d "THE DESTRUCTION OF ENEMY AIRCRAFT WITH AIR-TO-AIR-WEAPONS IS THE LHX'S PRIMARY CONTRIBUTION TO THE TOTAL FORCE AIR DEFENSE EFFORT."	E			HF	PEND. RFP
1.01	1	IS THE WIDE FIELD OF VIEW DISPLAY TECHNOLOGY MATURE TO SUPPORT LSD FSD?	CAN AN EFFECTIVE AND ACCEPTABLE HELMET MOUNTED DISPLAY BE DEVELOPED FOR LHX?	A1083, HFEA 1-1/17/86 (FOUO)	PM	FSD	A1083	P1 (FOUO)	E	A1083 HFEA P.1	L A1081 P.8 M/H A1003 P.R-60 , PAR 2	HF	PEND RFP
1.03	1	IS THE SINGLE PIOT ABLE TO EFFECTIVELY HANDLE ALL EMERGENCY PROCEDURES AND ASSOCIATED ACTIONS?	DESIGN OF LHX NEEDS TO ASSURE THAT ALL EMERGENCY PROCEDURES CAN BE PERFORMED BY A SINGLE PILOT.	A1083, HFEA 20-1/17/86A (FOUO)	PM	PRIOR TO FSD	A1083	P20 (FOUO)	E	A1083 HFEA P.20		HF	PEND
1.10/1.11/1.14/7.11/ 7.12	1	CAN A SINGLE PILOT COMPLETE THE MISSION, GIVEN SINGLE POINT FAILURES?	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	A1083, HFEA 22-1/17/86 (FOUO)	PM	OT II	A1083	P22 (FOUO)	E	A1083 HFEA P.22		HF	PEND RFP

LHX MANPRINT SMMP CRITICAL QUESTION REPORT (CSREP-T)
(SEQUENCED ON CRITICALITY WITHIN MANPRINT DOMAIN)
OPERATOR = 1, MAINTAINER = 2, SUPPORT = 3
(INDEXED ON TYPECD + CSCD)

SMMP CRITICAL QUESTION NUMBER	OPER= MAIN=2 SUPT=3	CRITICAL QUESTION	ALLEN DERIVED ISSUE	DOCUMENTATION SUPPORTING ISSUE SELECTION	RESPONSIBLE AGENCY	WHEN RESOLVED	SOURCE DOCUMENT IDNO	PAGE/PARA IN SOURCE DOCUMENT	CRITI- CALITY SCORE	SOURCE OF SOLU'N	RISK	MANPRINT DOMAIN	STATUS
1.11/1.14/7.11/7.12	1	CAN A SINGLE PILOT REACT TO CHANGES IN THE MISSION?	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	A1083, HFEA 22-1/17/86 (FOUO)	PM	OT II	A1083	P22 (FOUO)	E	A1083 HFEA P.22		HF	PEND RFP
1.14/7.11/7.12	1	WILL SINGLE POINT FAILURES OF THE SYSTEM AUTOMATION INCREASE PILOT WORKLOAD SO AS TO PREVENT MISSION ACCOMPLISHMENT OR REDUCE SURVIVABILITY?	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	A1083, HFEA 22-1/17/86 (FOUO)	PM	OT II	A1083	P22 (FOUO)	E	A1083 HFEA P.22		HF	PEND. RFP
7.11/7.12	1	CAN A SINGLE PILOT COMPLETE THE MISSION, GIVEN SINGLE POINT FAILURES?	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	A1083, HFEA 22-1/17/86 (FOUO)	PM	OT II	A1083	P22 (FOUO)	E	A1083 HFEA P.22		HF	PEND. RFP
7.12	1	WILL SINGLE POINT FAILURES OF THE SYSTEM AUTOMATION INCREASE PILOT WORKLOAD SO AS TO PREVENT MISSION ACCOMPLISHMENT OR REDUCE SURVIVABILITY?	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	A1083, HFEA 22-1/17/86 (FOUO)	PM	OT II	A1083	P22 (FOUO)	E	A1083 HFEA P.22		HF	PEND. RFP
1.12	1	CAN THE AUTOMATIC TARGET ACQUISITION SYSTEM OPERATE QUICKLY AND ACCURATELY ENOUGH TO ALLOW THE SINGLE PILOT TO ACCOMPLISH THE MISSION AND HAVE ACCEPTABLE SURVIVABILITY?	CAN THE TARGET ACQUISITION PROCESS BE SUCCESSFULLY AUTOMATED TO ASSURE EFFECTIVE SINGLE CREW MEMBER OPERATIONS?	A1083, HFEA 24-1/17/86A (FOUO)	PM	FSD	A1083	P24 (FOUO)	E	A1083 HFEA P.24	M/H A1081 P.8 & P.9 H A1003 P.R-56 -57,PA R (j)	HF	PEND. RFP
1.16	1	CAN FLIGHT CONTROL AUTOMATION REDUCE WORKLOAD ENOUGH FOR THE SINGLE PILOT TO ACCOMPLISH THE MISSION?	CAN TECHNOLOGY ACCOMPLISH THE AUTOMATIC FLIGHT CONTROL WHICH IS CRITICAL TO SINGLE CREW MEMBER OPERATION?	A1083, HFEA 27-1/17/86 (FOUO)	PM	FSD	A1083	P27 (FOUO)	E	A1083 HFEA P.27	H A1081 P.8	HF	PEND. RFP

LHX MANPRINT SMMP CRITICAL QUESTION REPORT (DSREPT)
(SEQUENCED ON CRITICALITY WITHIN MANPRINT DOMAIN)
OPERATOR = 1, MAINTAINER = 2, SUPPORT = 3
(INDEXED ON TYPECD + CSCD)

SMMP CRITICAL QUESTION NUMBER	OPER=1 MAIN=2 SUPT=3	CRITICAL QUESTION	ALLEN DERIVED ISSUE	DOCUMENTATION SUPPORTING ISSUE SELECTION	RESPONSIBLE AGENCY	WHEN RESOLVED	SOURCE DOCUMENT IDNO	PAGE/PARA IN SOURCE DOCUMENT	CRITICALITY SCORE	SOURCE OF SOL'N	RISK	MANPRINT DOMAIN	STATUS
1.13/1.14/7.12	1	CAN SYSTEM AUTOMATION REDUCE PILOT WORKLOAD TO A POINT THAT WILL ALLOW THE SINGLE PILOT TO ACCOMPLISH THE MISSION AND HAVE ACCEPTABLE SURVIVABILITY?	WHAT SYSTEMS ARE AUTOMATED AND HOW SPECIFIC AUTOMATION ACCOMMODATES SINGLE CREW MEMBER OPERATION HAS NOT BEEN COMPLETELY ASSESSED. HF DESIGN STANDARDS DO NOT FULLY ADDRESS ISSUES AND TRADE OFFS IN AUTOMATION AND COGNITIVE OVERLOAD.	A1083, HFEA 25-1/17/86A (FOUO)	PM	FSD	A1083	P25 (FOUO)	E	A1083 HFEA P.25	M/H A1081 P.8 & P.9 H A1003 P.R-67 , PAR C	HF-TNG	PEND. RFP
7.12	1	WILL SINGLE POINT FAILURES OF THE SYSTEM AUTOMATION INCREASE PILOT WORKLOAD SO AS TO PREVENT MISSION ACCOMPLISHMENT OR REDUCE SURVIVABILITY?	WHAT SYSTEMS ARE AUTOMATED AND HOW SPECIFIC AUTOMATION ACCOMMODATES SINGLE CREW MEMBER OPERATION HAS NOT BEEN COMPLETELY ASSESSED. HF DESIGN STANDARDS DO NOT FULLY ADDRESS ISSUES AND TRADE OFFS IN AUTOMATION AND COGNITIVE OVERLOAD.	A1083, HFEA 25-1/17/86A (FOUO)	PM	FSD	A1083	P25 (FOUO)	E	A1083 HFEA P.25	M/H A1081 P.8 & P.9 H A1003 P.R-67 , PAR C	HF-TNG	PEND RFP
5.02	1	CAN THE LIGHTING REQUIREMENTS OF THE COCKPIT SYSTEMS (NIGHT VISION DEVICES, PANEL AND HELMET DISPLAYS, LASER AND FLASHBLINDNESS PROTECTORS) BE RESOLVED AND AN INTEGRATED LIGHTING SYSTEM DEVELOPED THAT DOES NOT INTERFERE WITH THOSE SYSTEMS OPERATION?	AN INTEGRATED APPROACH TO CREW STATION AND DISPLAY LIGHTING IS NEEDED. LIGHTING FOR MAINTENANCE AND FARP HAS NOT BEEN FULLY EVALUATED.	A1083, HFEA 29-1/17/86A (FOUO)	PM	FSD	A1083	P52 (FOUO)	E	A1083 HFEA P.29		HF	PEND RFP
1.17	1	DOES THE MOUNTING OF SECONDARY SWITCHES AND BUTTONS ON THE SIDE-ARM-CONTOLLER DEGRADE THE PILOT'S PERFORMANCE?	THE HUMAN INTERACTIONS AND WORKLOAD RELATED TO FLYING THE AIRCRAFT WITH A "SIDE-ARM-CONTROLLER" AND CONTROLLING OTHER FUNCTIONS AT THE SAME TIME ARE NOT FULLY ASSESSED.	A1083, HFEA 32-1/17/86 (FOUO)	PM	FSD	A1083	P32 (FOUO)	E	A1083 HFEA P.32	M/H A1003 P.R-VI I-17 SUMMAR Y	HF	RES. HFEA

LHX MANPRINT SMMP CRITICAL QUESTION REPORT (ISREP-T)
(SEQUENCED ON CRITICALITY WITHIN MANPRINT DOMAIN)
OPERATOR = 1, MAINTAINER = 2, SUPPORT = 3
(INDEXED ON TYPECO + CSCO)

SMMP CRITICAL QUESTION NUMBER	OPER=1 MAIN=2 SUPT=3	CRITICAL QUESTION	ALLEN DERIVED ISSUE	DOCUMENTATION SUPPORTING ISSUE SELECTION	RESPONSIBLE AGENCY	WHEN RESOLVED	SOURCE DOCUMENT IDNO	PAGE/PARA IN SOURCE DOCUMENT	CRITI-CALITY SCORE	SOURCE OF SOUL'N	RISK	MANPRINT DOMAIN	STATUS
1.18/7.08	1	CAN THE NIGHT VISION PILOTAGE SYSTEM ALLOW A SINGLE PILOT TO FLY NOE AT NIGHT AND IN ADVERSE WEATHER TO ACCOMPLISH THE MISSION WITH AN ACCEPTABLE LEVEL OF SAFETY?	THE SYSTEM FOR NAVIGATING NOE AT NIGHT AND IN ADVERSE WEATHER CONDITIONS WHICH REQUIRES A WIDE FIELD OF VIEW WITH SUITABLE SENSITIVITY AND RESOLUTION, IS A HIGH RISK DEVELOPMENT.	A1083, HFEA 37-1/17/86A (FOUO)	PM	FSD	A1083	P37 (FOUO)	E	A1083 HFEA P.37	H A1081 P.8	HF	PEND. RFP
7.08	1	CAN THE NIGHT VISION PILOTAGE SYSTEM ALLOW A SINGLE PILOT TO FLY NOE AT NIGHT AND IN ADVERSE WEATHER TO ACCOMPLISH THE MISSION WITH AN ACCEPTABLE LEVEL OF SAFETY?	THE SYSTEM FOR NAVIGATING NOE AT NIGHT AND IN ADVERSE WEATHER CONDITIONS WHICH REQUIRES A WIDE FIELD OF VIEW WITH SUITABLE SENSITIVITY AND RESOLUTION, IS A HIGH RISK DEVELOPMENT	A1083, HFEA 37-1/17/86A (FOUO)	PM	FSD	A1083	P37 (FOUO)	E	A1083 HFEA P.37	H A1081 P.8	HF	PEND. RFP
	1		VISUAL DISPLAY PARAMETERS MUST FALL WITHIN ACCEPTABLE OPERATIONAL LIMITS.	A1075, HH ISSUES PAGE 18	PM	FSD	A1075	PAGE 18	E			HF	PEND RFP
5.15	1	WHAT IS THE ANTHROPOMETRIC DESCRIPTION OF THE POPULATION OF INDIVIDUALS INVOLVED IN OPERATING, MAINTAINING AND SUPPORTING THE LHX? (I.E., RANGE OF PHYSICAL DIMENSIONS FOR MEN & WOMEN)	ANTHROPOMETRIC REQUIREMENTS HAVE NOT BEEN ESTABLISHED FOR THE LHX.	A1075, HH ISSUES, P-10	PM	RFP	A1075	HH ISSUES, P-10	E	R1010, RFP P2.3.2 .16.4 AND 3.3.3		HF	RES. RFP
6.01/7.10	1	IS THE INTERACTION OF FATIGUE/STRESS/ANXIETY OVERDEMANDING IN THE SINGLE PLACED COCKPIT TO THE EXTENT THAT MISSION ACCOMPLISHMENT IS RISKED?	HOW SUCCESSFULLY DOES THE CURRENT LHX DESIGN DEAL WITH THE HUMAN FACTORS ISSUES IN COGNITIVE OVERLOAD AND PILOT FATIGUE DURING COMBAT OPERATIONS, CONTINUED OPERATION, AND NuC OPERATIONS?	A1083, HFEA 3-1/17/86A	PM	OT II	P1038	LHX TSN-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING	H		M/H A1081 P.8 & P.9	HF-TNG	PEND

LHX MANPRINT SMMP CRITICAL QUESTION REPORT (ISREP-7)
(SEQUENCED ON CRITICALITY WITHIN MANPRINT DOMAIN,
OPERATOR = 1, MAINTAINER = 2, SUPPORT = 3
(INDEXED ON TYPE00 + CSCI)

SMMP CRITICAL QUESTION NUMBER	OPER=1 MAIN=2 SUPT=3	CRITICAL QUESTION	ALLEN DERIVED ISSUE	DOCUMENTATION SUPPORTING ISSUE SELECTION	RESPONSIBLE AGENCY	WHEN RESOLVED	SOURCE DOCUMENT IDNO	PAGE/PARA IN SOURCE DOCUMENT	CRITI- CALITY SCORE	SOURCE OF SOLU'N	RISK	MANPRINT DOMAIN	STATUS
7.10	1	HOW MUCH WILL STRESS AND FATIGUE AFFECT MISSION ACCOMPLISHMENT?	HOW SUCCESSFULLY DOES THE CURRENT LHX DESIGN DEAL WITH THE HUMAN FACTORS ISSUES IN COGNITIVE OVERLOAD AND PILOT FATIGUE DURING COMBAT OPERATIONS, CONTINUED OPERATION, AND NBC OPERATIONS?	A1083, HFEA 3-1/17/86A	PM	OT II	P1038	LHX TSN-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING	H		M/H A1081 P.8 & P.9	HF	PEND.
	1		IS CONTRACTOR DELIVERED TRAINING LIMITED TO PILOT TRAINING? STATEMENT IN ROC IS NOT CLEAR.	R1003 ROC	PM/TRADOC	TOA AP U VOL IX, TNG	R1003	ROC PAGE F-2 PARAGRAPH 2.E	H	R1010 RFP P3.5.1		TNG	RES RFP
4.01R	1	ARE TRAINING STANDARDS ADEQUATE TO ALLOW SCAT PILOTS TO PERFORM UNDER HIGH TASK LOADING?	ARE TRAINING STANDARDS ADEQUATE TO ALLOW SCAT PILOTS TO PERFORM UNDER HIGH TASK LOADING?	P1038, LHX TSM-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING	TRADOC	OT II	P1038	PAGE HEADING 'HELICOPTER, TRAINING, OPERATORS' (NO PAGE NUMBER)	H			TNG	UNRES
1.02	1	IS THE INTEGRATED HELMET DEVELOPMENT SUPPORTIVE OF 3 95 LB CRITERIA?	CAN LHX FLIGHT HELMET WITH HMD SIGHTING SYSTEM, AND POSSIBLE NBC, LASER, AND FLASH BLINDNESS PROTECTIVE DEVICES MEET WEIGHT REQUIREMENTS?	A1083, HFEA 2-1/17/86 (FOUO)	PM	FSD	A1083	P2 (FOUO)	H	A1083 HFEA P.2		HF	PEND. RFP
6.01/7.10	1	IS THE INTERACTION OF FATIGUE/STRESS/ANXIETY OVERDEMANDING IN THE SINGLE PLACED COCKPIT TO THE EXTENT THAT MISSION ACCOMPLISHMENT IS RISKED?	FATIGUE/STRESS/ ANXIETY MAY DEGRADE SINGLE CREW MEMBER PERFORMANCE ESPECIALLY IN DEGRADED MODES OF OPERATION.	A1083, HFEA 3-1/17/86A (FOUO)	USAARL	OT II	A1083	P3 (FOUO)	H	A1083 HFEA P.3		HF	PEND.
7.10	1	HOW MUCH WILL STRESS AND FATIGUE AFFECT MISSION ACCOMPLISHMENT?	FATIGUE/STRESS/ ANXIETY MAY DEGRADE SINGLE CREW MEMBER PERFORMANCE ESPECIALLY IN DEGRADED MODES OF OPERATION.	A1083, HFEA 3-1/17/86 (FOUO)	USAARL	OT II	A1083	P3 (FOUO)	H	A1083 HFEA P.3		HF-TNG	PEND.
7.03	1	IS PERSONNEL AND PROTECTIVE EQUIPMENT COMPATIBLE WITH THE TASK AND EQUIPMENT INERFACES TO PERMIT PERSONNEL TO ACCOMPLISH FUNCTIONS?	NBC AND COLD WEATHER PROTECTIVE CLOTHING CAN HAVE AN ADVERSE IMPACT ON SOLDIER PERFORMANCE.	A1083, HFEA 7-1/17/86A (FOUO)	PM	OT II	A1083	P7 (FOUO)	H	A1083 HFEA P.7		HF	PEND. RFP

LHX MANPRINT SMMP CRITICAL QUESTION REPORT (ISREP-1)
(SEQUENCED ON CRITICALITY WITHIN MANPRINT DOMAIN)
OPERATOR = 1, MAINTAINER = 2, SUPPORT = 3
(INDEXED ON TYPECD + CSCD)

SMMP CRITICAL QUESTION NUMBER	OPER= MAIN=2 SUPT=3	CRITICAL QUESTION	ALLEN DERIVED ISSUE	DOCUMENTATION SUPPORTING ISSUE SELECTION	RESPONSIBLE AGENCY	WHEN RESOLVED	SOURCE DOCUMENT IDNO	PAGE/PARA IN SOURCE DOCUMENT	CRITI- CALITY SCORE	SOURCE OF SOL'N	RISK	MANPRINT DOMAIN	STATUS
1.05	1	IS THE PROTECTION OF PERSONNEL FROM LASERS, RADIO FREQUENCY AND MICROWAVE SUFFICIENT TO PRECLUDE HEALTH SAFETY HAZARDS?	LASERS AND IR RADIATION CAN PRODUCE VISUAL DAMAGE DURING COMBAT AND TRAINING. RF AND MICROWAVE EXPOSURE ARE POTENTIAL HEALTH HAZARDS	A1083, HFEA 10-1/17/86 (FOUO)	PM	TT	A1083	P10 (FOUO)	H	A1083 HFEA P.10		HH-TNG	PEND. RFP
4.10R	1	WHAT ARE THE TRAINING REQUIREMENTS FOR THE SECOND CREW MEMBER IN THE UTILITY AIRCRAFT?	WHAT ARE THE TRAINING REQUIREMENTS FOR THE SECOND CREW MEMBER IN THE UTILITY AIRCRAFT?	A1083, HFEA 11-1/17/86 (FOUO)	TRADOC	PRIOR TO OT II	A1083	P11 (FOUO)	H	THIS DATA BASE AND A1083 HFEA P.11		TNG	UNRES.
1.19R	1	WHAT ARE THE CREW STATION DESIGN CRITERIA FOR THE LHX-UTILITY INCLUDING THE SECOND CREW MEMBER STATION?	WHAT ARE THE CREW STATION DESIGN CRITERIA FOR THE LHX-UTILITY?	A1083, HFEA 11-1/17/86 (FOUO)	PM	PRIOR TO OT II	A1083	P11 (FOUO)	H	THIS DATA BASE AND A1083 HFEA P.11		HF	UNRES.
1.03	1	ARE THE SPEECH COMMUNICATIONS AND AUDIO CUES OF SUFFICIENT CLARITY AND INTELIGIBILITY TO PERMIT EFFECTIVE COMMUNICATION?	CLEAR SPEECH COMMUNICATION AND AUDIO CUES ARE CRITICAL FOR SINGLE PILOT OPERATION. IMPROVED SPEECH INTELLIGIBILITY OVER CURRENT AIRCRAFT IS NECESSARY.	A1083, HFEA 12-1/17/86 (FOUO)	PM	FSD	A1083	P12 (FOUO)	H	A1083 HFEA P.12		HF	PEND. RFP
1.04	1	IS SINGLE PILOT OPERABILITY SUPPORTED EFFECTIVELY BY NIGHT VISION GOGGLE OPERATION?	LHX CONCEPTS PROVIDE: (1) HELMET MOUNTED NIGHT VISION SYSTEM OR (2) NIGHT VISION GOGGLES FOR UTILITY PILOT. #1 LEAVES SECOND CREW MEMBER WITH NO N.V. CAPABILITY. WITH #2, CURRENT SAFETY AND OPERATION CONSTRAINTS PRECLUDE SINGLE PILOT NIGHT OPERABILITY.	A1083 HFEA 13-1/17/86 (FOUO)	PM	RFP	A1083	P13 (FOUO)	H			HF	PEND.
1.05	1	IS DIGITAL DATABASE MAP SUPPORTIVE OF SINGLE PILOT OPERATION?	THE RESOLUTION/ACCURACY OF THE DIGITAL DATA BASE FOR THE MAP DISPLAY IS LESS THAN THAT REQUIRED FOR NOE/ADVERSE WEATHER NAVIGATION.	A1083, HFEA 14-1/17/86A (FOUO)	PM	FSD	A1083	P14 (FOUO)	H	A1083 HFEA P.14	L A1083 P.8	HF	PEND.

LHX MANPRINT SMMP CRITICAL QUESTION REPORT (SMCRP-T)
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OPERATOR = 1, MAINTAINER = 2, SUPPORT = 3
(INDEXED ON TYPECD + CSCD)

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1 06	1	CAN THE PILOT EFFECTIVELY FLY AND NAVIGATE THE AIRCRAFT WHILE SIMULTANEOUSLY ACQUIRING AND SERVICING TARGETS, ESPECIALLY FOR OFF-AXIS WEAPON EMPLOYMENT?	SCAT COMBAT MISSION INCLUDES A REQUIREMENT FOR THE PILOT TO MAINTAIN FLIGHT CONTROL AND/OR PERFORM A TARGET DESIGNATION TASK WHILE EFFECTIVELY USING THE TURRETED GUN IN AN OFF-AXIS ENGAGEMENT. CAN THESE TAKS BE PERFORMED CONCURRENTLY SUCCESSFULLY?	A1083, HFEA 15-1/17/86A (FOUO)	TRADOC	OT II	A1083	P15 (FOUO)	H	A1083 HFEA P.15	M/H A1003 P.R-27 , PAR C	HF	PEND. RFP
1 07	1	ARE VOICE RECOGNITION SYSTEMS OF SUFFICIENT MATURITY TO PERMIT THEIR USE IN THE LHX?	VOICE RECOGNITION SYSTEMS ARE NECESSARY TO REDUCE PILOT WORKLOAD. TECHNOLOGY DOES NOT APPEAR SUFFICIENTLY MATURE TO MEET THE REQUIREMENT UNDER COMBAT CONDITIONS	A1083, HFEA 18-1/17/86A (FOUO)	PM	FSD	A1083	P18 (FOUO)	H	A1083 HFEA P.18	M A1083 P.8 H A1003 P.R-63 PAR (h) & P.R-VI I-45	HF	PEND. RFP
1 15	1	WHAT DATA ENTRY PROCEDURES PRESENT THE LEAST WORKLOAD TO THE PILOT AND THE LEAST DIVERSION OF HIS ATTENTION FROM THE BATTLEFIELD?	HOW CAN IN-FLIGHT DATA ENTRY SYSTEMS REDUCE WORKLOAD TO LEVELS REQUIRED FOR SUCCESSFUL OPERATIONS?	A1083, HFEA 26-1/17/86 (FOUO)	PM	PRIOR TO FSD	A1083	P26 (FOUO)	H	A1083 HFEA P.26		HF	PEND. RFP
1 20R	1	CAN SINGLE PILOT OPERATION BE ACHIEVED WITHOUT MILLIMETER WAVE RADAR AND INTEGRATED COMMUNICATION, NAVIGATION, AND IDENTIFICATION AVIONICS?	CAN SINGLE PILOT OPERATION BE ACHIEVED WITHOUT MILLIMETER WAVE RADAR & INTEGRATED COMMUNICATION, NAVIGATION, IDENTIFICATION AVIONICS?	P1012, BTA, P3, PARA 1.8	PM	P3I PROGRAM	P1012	BTA, P3, PARA 1.8	H		H A1081 P.8	HF	UNRES
1 20R	1	CAN SINGLE PILOT OPERATION BE ACHIEVED WITHOUT MILLIMETER WAVE RADAR AND INTEGRATED COMMUNICATION, NAVIGATION, AND IDENTIFICATION AVIONICS?	CAN SINGLE PILOT OPERATION BE ACHIEVED WITHOUT MILLIMETER WAVE RADAR & INTEGRATED COMMUNICATION, NAVIGATION, IDENTIFICATION AVIONICS?	P1012, BTA, P3, PARA 1.8	PM	P3I PROGRAM	P1012	BTA, P3, PARA 1.8	H		H A1081 P.8	HF	UNRES

LHX MANPRINT SMMP CRITICAL QUESTION REPORT (DRAFT)
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1.20R	1	CAN SINGLE PILOT OPERATION BE ACHIEVED WITHOUT MILLIMETER WAVE RADAR AND INTEGRATED COMMUNICATION, NAVIGATION, AND IDENTIFICATION AVIONICS?	CAN SINGLE PILOT OPERATION BE ACHIEVED WITHOUT MILLIMETER WAVE RADAR & INTEGRATED COMMUNICATION, NAVIGATION, IDENTIFICATION AVIONICS?	P1012, BTA, P3, PARA 1.8	PM	P3I PROGRAM	P1012	BTA, P3, PARA 1.8	H	H A1081 P.8		HF	UNRES.
4.01	1	IS THERE AN EFFECTIVE MEANS TO PROVIDE SCAT PILOT TRAINING WITHOUT THE USE OF TWO SEAT SCAT TRAINING AIRCRAFT?	HOW CAN SCAT TRAINING BE DONE AT THE UNIT LEVEL WITHOUT PROHIBITIVELY EXPENSIVE FIELDING TO UNITS OF A 2-PLACE LHX MODIFICATION?	R1003 ROC	TRADOC	TOA AP U VOL IX TNG	R1003	PAR 5.a.(3) "THE LHX WILL BE DESIGNED TO MINIMIZE OPERATIONS AND SUPPORT COSTS FOR THE LIFE OF THE SYSTEM."	M			TNG	RES.
3.03/3.04/4.0	1	IS THE AVIATOR TO OPERATE AS THE SYSTEM INTEGRATOR OR THE COMMANDER?	CAN THE AVAILABLE OPERATORS (PILOTS) BE SUCCESSFULLY TRAINED WITHIN THE TIME, COST OF CURRENT SYSTEMS, AND WITHOUT INCREASING THE CURRENT TRAINING FACILITIES?	P1038 LHX TSM-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING A1083, HFEA 19-1/17/86 (FOUO)	TRADOC	PRIOR TO FSD	P1038	PAGE HEADING 'HELICOPTER, TRAINING, OPERATOR' NO PAGE NUMBER A1083 P15	M			TNG	PEND. ICTP
3.03/3.04/4.0	1	CAN AN AVIATOR WITH THE INTELLIGENCE AND SKILL LEVELS OF CURRENT AVIATORS AND EXPECTED FUTURE RECRUITS EFFECTIVELY OPERATE THE ADVANCED SYSTEMS?	CAN THE AVAILABLE OPERATORS (PILOTS) BE SUCCESSFULLY TRAINED WITHIN THE TIME, COST OF CURRENT SYSTEMS, AND WITHOUT INCREASING THE CURRENT TRAINING FACILITIES?	P1038 LHX TSM-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING A1083, HFEA 19-1/17/86 (FOUO)	TRADOC	PRIOR TO FSD	P1038	PAGE HEADING 'HELICOPTER, TRAINING, OPERATOR' NO PAGE NUMBER A1083 P19	M			TNG	PEND. ICTP
3.04/4.0	1	WHAT ADDITIONAL SKILLS ARE REQUIRED OF THE LHX AVIATOR?	CAN THE AVAILABLE OPERATORS (PILOTS) BE SUCCESSFULLY TRAINED WITHIN THE TIME, COST OF CURRENT SYSTEMS, AND WITHOUT INCREASING THE CURRENT TRAINING FACILITIES?	P1038 LHX TSM-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING A1083, HFEA 19-1/17/86 (FOUO)	TRADOC	PRIOR TO FSD	P1038	PAGE HEADING 'HELICOPTER, TRAINING, OPERATOR' NO PAGE NUMBER A1083 P19	M			TNG	PEND. ICTP

LHX MANPRINT SMMP CRITICAL QUESTION REPORT (ISREP-T)
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7.02	1	DOES THE DESIGN OF THE LHX PROVIDE AN ENVIRONMENTAL CONTROL SYSTEM SUFFICIENT TO PROTECT THE CREW AND PASSENGERS FROM COMBAT CONTAMINANTS AND ENVIRONMENTAL ELEMENTS?	INADEQUATE VENTILATION, HEATING OR COOLING COULD ADVERSELY AFFECT CREW AND PASSENGER PERFORMANCE AND COULD CREATE A HEALTH HAZARD	A1083, HFEA 6-1/17/86A (FOUO)	PM	FSD	A1083	P6 (FOUO)	M	A1083 HFEA P.6	L A1003 P.R-58 ,PAR (d)	HF	PEND. RFP
7.04	1	DOES THE CRASHWORTHINESS OF THE LHX MEET ACCEPTABLE STANDARDS FOR INJURY AND DEATH AVOIDANCE?	CRASHWORTHINESS OF LHX IS DEFINED AS "MODIFIED" MIL-STD-1290, HOWEVER EXTENT OF MODIFICATION IS UNDEFINED.	A1083, HFEA 8-1/17/86A (FOUO)	PM	PRIOR TO FSD	A1083	P8 (FOUO)	M	A1083 HFEA P.8		HH	PEND.
7.05	1	IS EXCESSIVE NOISE ENVIRONMENT PRESENT THAT WILL REDUCE PERSONNEL PERFORMANCE OR CREATE HEALTH HAZARDS?	STEADY STATE AND IMPULSE NOISE LEVELS OF THE LHX MAY DEGRADE AIR AND GROUND CREWS' PERFORMANCE AND MAY POSE HEALTH HAZARDS.	A1083, HFEA 9-1/17/86A (FOUO)	PM	TT	A1083	P9 (FOUO)	M	A1083 HFEA P.9		HF	PEND RFP
2.04/3.02/1.21R/4.14R	1	WHAT ARE THE MANPOWER AND PERSONNEL REQUIREMENTS FOR THE MISSION PLANNING/MAINTENANCE WORKSTATIONS?	FULL CAPABILITY AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCE ACTIVITIES.	A1083, HFEA 16-1/17/86A (FOUO)	TRADOC	PRIOR TO OT II	A1083	P16 (FOUO)	M	A1083 HFEA P.16		HF	PEND. RFP
3.02/1.21R/4.14R	1	WHAT ARE THE MANPOWER AND PERSONNEL REQUIREMENTS FOR THE MISSION PLANNING/MAINTENANCE WORKSTATIONS?	FULL CAPABILITY AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCE ACTIVITIES	A1083, HFEA 16-1/17/86A (FOUO)	TRADOC	PRIOR TO OT II	A1083	P16 (FOUO)	M	A1083 HFEA P.16		HF-TNG	PEND. RFP
1.21R/4.14R	1	WHAT ARE THE HUMAN FACTORS SPECIFICATIONS FOR DESIGN OF THE MISSION PLANNING/MAINTENANCE WORKSTATIONS?	FULL CAPABILITY AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCE ACTIVITIES	A1083, HFEA 16-1/17/86A (FOUO)	TRADOC	PRIOR TO OT II	A1083	P16 (FOUO)	M	A1083 HFEA P.16		HF-TNG	UNRES.

LHX MANPRINT/HMMP CRITICAL QUESTION REPORT (USREP **)
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HMMP CRITICAL QUESTION NUMBER	OPER=1 MAIN=2 SUPT=3	CRITICAL QUESTION	ACOEN DERIVED ISSUE	DOCUMENTATION SUPPORTING ISSUE SELECTION	RESPONSIBLE AGENCY	WHEN RESOLVED	SOURCE DOCUMENT IDNO	PAGE/PARA IN SOURCE DOCUMENT	CRITICALITY SCORE	SOURCE OF SOLUTION	RISK	MANPRINT DOMAIN	STATUS
4.14R	1	WHAT TRAINING REQUIREMENTS ARE GENERATED BY THE MISSION PLANNING/MAINTENANCE WORKSTATION?	FULL CAPABILITY AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCE ACTIVITIES.	A1083, HFEA 16-1/17/86A (FOUO)	TRADOC	PRIOR TO OT II	A1083	P16 (FOUO)	M	A1083 HFEA P.16		HF-TNG	UNRES.
7.07	1	IS THE SINGLE CREWMEMBER LHX MORE OR LESS SURVIVABLE THAN A TWO CREWMEMBER AIRCRAFT?	IS THE SINGLE CREW MEMBER LHX MORE OR LESS SURVIVABLE THAN A TWO CREW MEMBER AIRCRAFT?	A1083, HFEA 21-1/17/86 (FOUO)	PM	TT	A1083	P21 (FOUO)	M	A1083 HFEA P.21	M A1003 P.R-35 ,36 PAR (d)	HH	PEND. COEA
4.03	1	WHAT TRAINING FOR OPERATORS AND MAINTAINERS SHOULD TAKE PLACE AT THE UNIT?	WHAT ARE THE UNIT TRAINING REQUIREMENTS FOR OPERATORS AND MAINTAINERS IN TERMS OF INITIAL SKILLS, REQUALIFICATION, AND TACTICAL TRAINING?	A1083, HFEA 30-1/17/86 (FOUO)	TRADOC	PRIOR TO FSD	A1083	P30 (FOUO)	M	A1083 HFEA P.30		TNG	PEND T OA AP U VOL IX
4.06	1	WILL THE TRAINING PLAN PRODUCE ENOUGH PEOPLE WITH THE RIGHT TRAINING TO SUPPORT THE LHX SYSTEM AS IT IS FIELDED?	IS THE TRAINING PLAN ADEQUATE TO SUPPORT LHX FIELDING AT THE PROJECTED RATE?	A1083, HFEA 33-1/17/86 (FOUO)	PM/TRADOC	PRIOR TO FSD	A1083	P33 (FOUO)	M	A1083 HFEA P.33		TNG	PEND
5.09	1	HAVE ANY PREPLANNED PRODUCT IMPROVEMENTS BEEN EXAMINED FOR MANPRINT IMPLICATIONS?	PRODUCT IMPROVEMENT MUST BE FULLY INTEGRATED TO ASSURE IMPROVED SYSTEM PERFORMANCE.	A1083, HFEA 41-1/17/86A (FOUO)	PM	START OF P3I PROGRAM	P1038	LHX TSM-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING	M	A1083 HFEA P.41	M/H A1003 P.R-36 , PAR (e)	TNG	PEND RFP
4.08	1	CAN EMBEDDED TRAINING BE UTILIZED IN THE LHX? WILL EMBEDDED TRAINING REDUCE INSTRUCTOR REQUIREMENTS AND IMPROVE TRAINING ACCESSABILITY?	WILL THE LHX DESIGN TAKE ADVANTAGE OF COMPUTER ASSISTED TRAINING (EMBEDDED TRAINING) TECHNOLOGIES FOR INITIAL AND UNIT TRAINING?	P1038, LHX TSM-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING A1083, HFEA 38-1/17/86A (FOUO)	PM	FSD	A1083	HFEA P38 (FOUO)	M	A1083 HFEA P.38		TNG	PEND RFP
1.08/3.03/3.04	1	IS THE AVIATOR TO OPERATE AS THE SYSTEM INTEGRATOR OR THE COMMANDER?	HOW DO PSYCHOMOTOR AND COGNITIVE PERFORMANCE REQUIREMENTS FOR LHX COMPARE WITH THOSE OF AIRCRAFT BEING REPLACED OR OTHER AIRCRAFT IN THE DOD INVENTORY?	A1083, HFEA 19-1/17/86 (FOUO)	PM/HEL	RFP	P1036	LHX MANPRINT MANAGEMENT PLAN ANNEX E, P. E-17	M		M A1003 P.R-35 . PAR 3 a,b	HF	PEND.

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3.03/3.04	1	CAN AN AVIATOR WITH THE INTELLIGENCE AND SKILL LEVELS OF CURRENT AVIATORS AND EXPECTED FUTURE RECRUITS EFFECTIVELY OPERATE THE ADVANCED SYSTEMS?	HOW DO PSYCHOMOTOR AND COGNITIVE PERFORMANCE REQUIREMENTS FOR LHX COMPARE WITH THOSE OF AIRCRAFT BEING REPLACED OR OTHER AIRCRAFT IN THE DOD INVENTORY?	A1083, HFEA 19-1/17/86 (FOUO)	PM/HEL	RFP	P1036	LHX MANPRINT MANAGEMENT PLAN ANNEX E, P. E-17	M	M A1003 P R-35 , PAR 3 a,b	HF		PEND.
3.04	1	WHAT ADDITIONAL SKILLS ARE REQUIRED OF THE LHX AVIATOR?	HOW DO PSYCHOMOTOR AND COGNITIVE PERFORMANCE REQUIREMENTS FOR LHX COMPARE WITH THOSE OF AIRCRAFT BEING REPLACED OR OTHER AIRCRAFT IN THE DOD INVENTORY?	A1083, HFEA 19-1/17/86 (FOUO)	PM/HEL	RFP	P1036	LHX MANPRINT MANAGEMENT PLAN ANNEX E, P. E-17	M	M A1003 P R-35 , PAR 3 a,b	HF		PEND.
			WHAT IS THE MOST COST EFFECTIVE AND TRAINING EFFECTIVE MIX OF PART-TASK, FULL MISSION SIMULATOR AND OPERATIONAL AIRCRAFT IN INITIAL ENTRY LHX PILOT TRAINING?	P1038, LHX TSM-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING	TRADOC	PUBLICATION OF CTEA	P1038		L		TNG		PEND T OA AP U VOL IX
	1		IS THERE DEGRADATION OF PILOT PERFORMANCE OR ARE THERE LONG-TERM HEALTH IMPLICATIONS STEMMING FROM CURRENT LHX DESIGN?	P1038, LHX TSM-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING	USAARL	OT II	P1038		L		HH		PEND.
	1		WHAT IS THE NUMBER OF SKILLS AND WHAT SKILL LEVELS ARE REQUIRED FOR CURRENT LIGHT FLEET OPERATIONS? LHX SHOULD REDUCE THIS.	R1003 ROC	TRADOC	PRIOR TO OT II	R1003	ROC PAGE 6 PARAGRAPH 9	L		PERSONNEL SKILL		PEND.
4.08/4.12R	1	CAN EMBEDDED TRAINING BE UTILIZED IN THE LHX? WILL EMBEDDED TRAINING REDUCE INSTRUCTOR REQUIREMENTS AND IMPROVE TRAINING ACCESSABILITY?	HOW CAN THE USE OF NEW TECHNOLOGY SIMPLIFY AND REDUCE TRAINING RESOURCES?	P1038, LHX TSM-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING	TRADOC	PUBLICATION OF CTEA	R1001	O&O VI PAR 1 "TRAINING WILL BE DESIGNED, VALIDATED, AND ADMINISTERED FOR OPERATOR, MAINTENANCE, AND SUPPORT PERSONNEL IN ACCORDANCE WITH US ARMY TRAINING AND DOCTRINE COMMAND (TRADOC), US ARMY MATERIEL COMMAND (AMC) AND APPROPRIATE MAJOR	L		TNG		PEND T OA AP U VOL IX

LHX MANPRINT SMMP CRITICAL QUESTION REPORT (ISREP-*)
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4.02R	1	HOW CAN THE USE OF NEW TRAINING TECHNOLOGY SIMPLIFY AND REDUCE TRAINING RESOURCES?	HOW CAN THE USE OF NEW TECHNOLOGY SIMPLIFY AND REDUCE TRAINING RESOURCES?	P1038, LHX TS ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING	TRADOC	PUBLICATION OF CTEA	R1001	O&O VI. PAR 1 "TRAINING WILL BE DESIGNED, VALIDATED, AND ADMINISTERED FOR OPERATOR, MAINTENANCE, AND SUPPORT PERSONNEL IN ACCORDANCE WITH US ARMY TRAINING AND DOCTRINE COMMAND (TRADOC), US ARMY MATERIEL COMMAND (AMC) AND APPROPRIATE MAJOR COMMANDS ..."	L		TNG		PEND T OA AP U VOL IX
6.01	1	IS WHOLE BODY VIBRATION DETRIMENTAL TO CREW PERFORMANCE AND MISSION ACCOMPLISHMENT?	PROLONGED EXPOSURE TO WHOLE BODY VIBRATION MAY HAVE AN UNDESIRABLE IMPACT ON THE AIRCREW	A1083, HFEA 4-1/17/85 (FOUO)	USAARL	??	A1083	P4 (FOUO)	L	A1083 HFEA P.4	HF		PEND. RFP
7.01	1	IS THERE A REASONABLE POTENTIAL FOR EXPOSURE OF OCCUPANTS TO EXCESSIVE QUANTITIES OF HALON 1301 FIRE EXTINGUISHING AGENTS?	CURRENT FIRE EXTINGUISHING SYSTEMS OFTEN USE HALON 1301 WHICH CAN HAVE ADVERSE HEALTH EFFECTS ON PERSONNEL.	A1083, HFEA 5-1/17/86 (FOUO)	PM	??	A1083	P5 (FOUO) -	L	A1083 HFEA P.5	HH		PEND. RFP
4.07	1	SHOULD THE LHX BE USED IN INITIAL ENTRY ROTOR WING TRAINING?	AS THE LHX ENTERS THE INVENTORY CURRENT TRAINING AIRCRAFT MAY BE REPLACED BY LHX. THE LHX TRAINING PROGRAM/SYSTEM/AIRCRAFT SHOULD BE ESTABLISHED TO INCLUDE IERW.	A1083, HFEA 17-1/17/86A (FOUO)	TRADOC	PRIOR TO FSD	A1083	P17 (FOUO)	L	A1083 HFEA P.17	TNG		PEND.T OA AP U VOL IX
4.13R	1	WHAT ARE THE TRAINING REQUIREMENTS FOR PERSONNEL OF OTHER AIRCRAFT STATIONED WITH THE LHX?	WHAT ARE THE TRAINING REQUIREMENTS FOR PERSONNEL OF OTHER AIRCRAFT STATIONED WITH THE LHX?	A1004, TOA, APPENDIX U, VOL IX, TRAINING P U-35	TRADOC	PRIOR TO FIELDING	A1004	TOA, APPENDIX U, VOL IX, TRAINING P U-35	L		TNG		PEND.T OA AP U VOL IX

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LHX MANPRINT SMMP CRITICAL QUESTION REPORT (DISREPT)
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5.05/7.03	2	DOES THE LHX DESIGN ALLOW FOR MAINTENANCE WHILE WEARING PROTECTIVE GARMENTS UNDER ALL CLIMATIC CONDITIONS?	NBC AND COLD WEATHER PROTECTIVE CLOTHING CAN HAVE AN ADVERSE IMPACT ON SOLDIER PERFORMANCE	A1083, HFEA 7-1/17/86A (FOUO)	PM	OT II	A1083	P7 (FOUO)	H	A1083 HFEA P7		HF	PEND. RFP
7.03	2	IS PERSONAL AND PROTECTIVE EQUIPMENT COMPATIBLE WITH THE TASK AND THE EQUIPMENT INTERFACES TO PERMIT PERSONNEL TO ACCOMPLISH FUNCTIONS?	NBC AND COLD WEATHER PROTECTIVE CLOTHING CAN HAVE AN ADVERSE IMPACT ON SOLDIER PERFORMANCE.	A1083, HFEA 7-1/17/86A (FOUO)	PM	OT II	A1083	P7 (FOUO)	H	A1083 HFEA P7		HF	PEND. RFP
7.06	2	IS THE PROTECTION OF PERSONNEL FROM LASERS, RADIO FREQUENCY AND MICROWAVE SUFFICIENT TO PRECLUDE HEALTH SAFETY HAZARDS?	LASERS AND IR RADIATION CAN PRODUCE VISUAL DAMAGE DURING COMBAT AND TRAINING. RF AND MICROWAVE EXPOSURE ARE POTENTIAL HEALTH HAZARDS.	A1083, HFEA 10 1/17/86 (FOUO)	PM	TT	A1083	P10 (FOUO)	H	A1083 HFEA P.10		HH-TNG	PEND. RFP
	2		WHAT SYSTEMS ARE AUTOMATED AND HOW SPECIFIC AUTOMATION ACCOMODATES SINGLE CREW MEMBER OPERATION HAS NOT BEEN COMPLETELY ASSESSED. HF DESIGN STANDARDS DO NOT FULLY ADDRESS ISSUES AND TRADE OFFS IN AUTOMATION AND COGNITIVE OVERLOAD.	A1083, HFEA 25-1/17/86A (FOUO)	PM	FSD	A1083	P25 (FOUO)	H	A1083 HFEA P.25	M/M A1081 P.6-9 H A1003 P.R-67 PAR C	HF	PEND. RFP
5.03	2	WHAT LIGHT IS REQUIRED TO FACILITATE MAINTENANCE?	AN INTEGRATED APPROACH TO CREW STATION AND DISPLAY LIGHTING IS NEEDED. LIGHTING FOR MAINTENANCE AND FARP HAS NOT BEEN FULLY EVALUATED.	A1083, HFEA 29-1/17/86A (FOUO)	PM	FSD	A1083	P29 (FOUO)	H	A 1083 HFEA P29		HF	PEND RFP
4.06	2	WILL THE TRAINING PLAN PRODUCE ENOUGH PEOPLE WITH THE RIGHT TRAINING TO SUPPORT THE LHX SYSTEM AS IT IS FIELDED?	IS THE TRAINING PLAN ADEQUATE TO SUPPORT LHX FIELDING AT THE PROJECTED RATE?	A1083, HFEA 33-1/17/86 (FOUO)	PM/TRADOC	PRIOR TO FSD	A1083	P33 (FOUO)	H	A1083 HFEA P.33		TNG	PEND

LHX MANPRINT SMMP CRITICAL QUESTION REPORT (ISREP-T)
(SEQUENCED ON CRITICALITY WITHIN MANPRINT DOMAIN)
OPERATOR = 1, MAINTAINER = 2, SUPPORT = 3
(INDEXED ON TYPECD + CSCD)

SMMP CRITICAL QUESTION NUMBER	OPER=1 MAIN=2 SUPT=3	CRITICAL QUESTION	ALLEN DERIVED ISSUE	DOCUMENTATION SUPPORTING ISSUE SELECTION	RESPONSIBLE AGENCY	WHEN RESOLVED	SOURCE DOCUMENT IDNO	PAGE/PARA IN SOURCE DOCUMENT	CRITICALITY SCORE	SOURCE OF SOUL'N	RISK	MANPRINT DOMAIN	STATUS
4.09/2.05R	2	CAN THE AVAILABLE MAINTAINER PERSONNEL BE TRAINED TO MAINTAIN THE LHX?	CAN ALL UNIT MAINTENANCE FUNCTIONS BE PERFORMED BY NO MORE THAN THREE DIFFERENT MOS, INCLUDING CREW CHIEF?	R1003 ROC	PM/ILS	PRIOR TO FSD	R1003	ROC PAGE 6 PARAGRAPH 9	M	A1082 "HARDMAN"		PERSONNEL LRU	PEND
2.05R	2	CAN ALL UNIT MAINTENANCE FUNCTIONS BE PERFORMED BY NO MORE THAN THREE DIFFERENT MOS, INCLUDING CREW CHIEF?	CAN ALL UNIT MAINTENANCE FUNCTIONS BE PERFORMED BY NO MORE THAN THREE DIFFERENT MOS, INCLUDING CREW CHIEF?	R1003 ROC	PM/ILS	PRIOR TO FSD	R1003	ROC PAGE 6 PARAGRAPH 9	M			PERSONNEL LRU	UNRES.
7.05	2	IS EXCESSIVE NOISE ENVIRONMENT PRESENT THAT WILL REDUCE PERSONNEL PERFORMANCE OR CREATE HEALTH HAZARDS?	STEADY STATE AND IMPULSE NOISE LEVELS OF THE LHX MAY DEGRADE AIR AND GROUND CREWS' PERFORMANCE AND MAY POSE HEALTH HAZARDS.	A1083, HFEA 9-1/17/86A (FOUO)	PM	TT	A1083	P9 (FOUO)	M	A1083 HFEA P.9	HF		PEND. RFP
2.04/3.02/1.21R	2	WHAT ARE THE MANPOWER AND PERSONNEL REQUIREMENTS FOR THE MISSION PLANNING/MAINTENANCE WORKSTATIONS?	FULL CAPABILITY AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCE ACTIVITIES.	A1083, HFEA 16-1/17/86A (FOUO)	TRADOC	PRIOR TO OT II	A1083	P16 (FOUO)	M	A1083 HFEA P.16	HF		PEND. RFP
2.04/3.02/4.14R	2	WHAT ARE THE MANPOWER AND PERSONNEL REQUIREMENTS FOR THE MISSION PLANNING/MAINTENANCE WORKSTATIONS?	FULL CAPABILITY AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCE ACTIVITIES.	A1083, HFEA 16-1/17/86A (FOUO)	TRADOC	PRIOR TO OT II	A1083	P16 (FOUO)	M	A1083 HFEA P.16	TNG		PEND. RFP
4.03	2	WHAT TRAINING FOR OPERATORS AND MAINTAINERS SHOULD TAKE PLACE AT THE UNIT?	WHAT ARE THE UNIT TRAINING REQUIREMENTS FOR OPERATORS AND MAINTAINERS IN TERMS OF INITIAL SKILLS, REQUALIFICATION, AND TACTICAL TRAINING?	A1083, HFEA 30-1/17/86 (FOUO)	TRADOC	PRIOR TO FSD	A1083	P30 (FOUO)	M	A1083 HFEA P.30	TNG		PEND T OA AP U VOL IX

LHX MANPRINT SMMP CRITICAL QUESTION REPORT (ISREP-T)
(SEQUENCED ON CRITICALITY WITHIN MANPRINT DOMAIN)
OPERATOR = 1, MAINTAINER = 2, SUPPORT = 3
(INDEXED ON TYPECD + CSCC)

SMMP CRITICAL QUESTION NUMBER	OPER=1 MAIN=2 SUPT=3	CRITICAL QUESTION	ALLEN DERIVED ISSUE	DOCUMENTATION SUPPORTING ISSUE SELECTION	RESPONSIBLE AGENCY	WHEN RESOLVED	SOURCE DOCUMENT IDNC	PAGE/PARA IN SOURCE DOCUMENT	CRITICALITY SCORE	SOURCE OF SOLN	RISK	MANPRINT DOMAIN	STATUS
5.09	2	HAVE ANY PREPLANNED PRODUCT IMPROVEMENTS BEEN EXAMINED FOR MANPRINT IMPLICATIONS?	PRODUCT IMPROVEMENT MUST BE FULLY INTEGRATED TO ASSURE IMPROVED SYSTEM PERFORMANCE	A1083, HFEA 41-1/17/86A (FOUO)	PM	START OF P3I PROGRAM	A1083	P41 (FOUO)	M	A1083 HFEA P.41	M/H A1003 P.R-36 , PAR (e)	TNG	PEND. RFP
4.08	2	CAN EMBEDDED TRAINING BE UTILIZED IN THE LHX? WILL EMBEDDED TRAINING REDUCE INSTRUCTOR REQUIREMENTS AND IMPROVE TRAINING ACCESSABILITY?	WILL THE LHX DESIGN TAKE ADVANTAGE OF COMPUTER ASSISTED TRAINING (EMBEDDED TRAINING) TECHNOLOGIES FOR INITIAL AND UNIT TRAINING?	P1038, LHX TSM-ISSUES GENERATED FROM 3 DEC 1985 FT RUCKER MEETING	PM	FSD	A1083	HFEA P38 1/17/86 (FOUO)	M	A1083 HFEA P.38		TNG	PEND. RFP
5.05/5.06/5.07/5.08	2	DOES THE LHX DESIGN ALLOW FOR MAINTENANCE WHILE WEARING PROATECTIVE GARMENTS UNDER ALL CLIMATIC CONDITIONS?	DOES THE LHX SYSTEM DESIGN ADEQUATELY CONSIDER HUMAN FACTORS IN MAINTENANCE (E.G. ACCESSIBILITY, PROTECTIVE CLOTHING, COMPOSITE MATERIALS REPAIR, ETC)?	A1083, HFEA 40-1/17/85 (FOUO)	PM	PRIOR TO FSD	A1083	P40 (FOUO)	M	A1083 HFEA P.40		HF	PEND. RFP
5.07/5.08	2	DOES THE LHX DESIGN PROVIDE BIT, BITE, AND ATE WHICH THE MAINTAINER CAN USE AND UNDERSTAND?	DOES THE LHX SYSTEM DESIGN ADEQUATELY CONSIDER HUMAN FACTORS IN MAINTENANCE (E.G. ACCESSIBILITY, PROTECTIVE CLOTHING, COMPOSITE MATERIALS REPAIR, ETC)?	A1083, HFEA 40-1/17/85 (FOUO)	PM	PRIOR TO FSD	A1083	P40 (FOUO)	M	A1083 HFEA P.40		HF	PEND. RFP
5.08	2	HAS THE REPAIRABILITY/MAINTAINABILITY OF COMPOSITE MATERIALS BEEN CONSIDERED?	DOES THE LHX SYSTEM DESIGN ADEQUATELY CONSIDER HUMAN FACTORS IN MAINTENANCE (E.G. ACCESSIBILITY, PROTECTIVE CLOTHING, COMPOSITE MATERIALS REPAIR, ETC)?	A1083, HFEA 40-1/17/85 (FOUO)	PM	PRIOR TO FSD	A1083	P40 (FOUO)	M	A1083 HFEA P.40		HF	PEND. RFP
4.04/4.05	2	WHAT IS THE EFFECT ON INSTITUTIONAL TRAINING OF HAVING TO CONDUCT TWO LEVEL MAINTAINANCE TRAINING SIMULTANEOUSLY DURING THE LHX PHASE-IN PERIOD?	WHAT IMPACT DOES TWO LEVEL MAINTENANCE HAVE ON INSTITUTIONAL AND UNIT LEVEL MAINTENANCE TRAINING DURING LHX 'PHASE IN' PERIOD AND WHEN STEADY STATE CONDITIONS ARE REACHED?	A1083, HFEA 33-1/17/86 (FOUO)	PM/ILS	PRIOR TO PRODUCTION	A1083	P33 (FOUO)	M	A1083 HFEA P.33		TNG	PEND

LHX MANPRINT SMMP CRITICAL QUESTION REPORT (:SREP-)
(SEQUENCED ON CRITICALITY WITHIN MANPRINT DOMAIN
OPERATOR = 1, MAINTAINER = 2, SUPPORT = 3
(INDEXED ON TYPECD + CSCD)

SMMP CRITICAL QUESTION NUMBER	OPER=1 MAIN=2 SUPT=3	CRITICAL QUESTION	ALLEN DERIVED ISSUE	DOCUMENTATION SUPPORTING ISSUE SELECTION	RESPONSIBLE AGENCY	WHEN RESOLVED	SOURCE DOCUMENT IDNO	PAGE/PARA IN SOURCE DOCUMENT	CRITI-CALITY SCORE	SOURCE OF SOUL'N	RISK	MANPRINT DOMAIN	STATUS
4.05	2	WHAT IS THE EFFECT ON UNIT TRAINING?	WHAT IMPACT DOES TWO LEVEL MAINTENANCE HAVE ON INSTITUTIONAL AND UNIT LEVEL MAINTENANCE TRAINING DURING LHX 'PHASE IN' PERIOD AND WHEN STEADY STATE CONDITIONS ARE REACHED?	A1083, HFEA 33-1/17/86 (FOUO)	PM/ILS	PRIOR TO PRODUCTION	A1083	P33 (FOUO)	M	A1083 HFEA P.33		TNG	PEND.
7.09	2	WHAT WILL BE THE EFFECT OF FATIGUE/STRESS ON LHX MAINTENANCE?	WILL THE FATIGUE AND STRESS FROM THE MAINTENANCE BURDEN OF SUSTAINED CONTINUOUS OPERATIONS ADVERSELY AFFECT MISSION ACCOMPLISHMENT?	A1083, HFEA 39-1/17/86A (FOUO)	PM	OT II	A1083	P39 (FOUO)	M	A1083 HFEA P.39		HF	PEND.
4.09	2	CAN THE AVAILABLE MAINTAINER PERSONNEL BE TRAINED TO MAINTAIN THE LHX?	ANALYSES OF MAINTENANCE TRAINING ARE COMPLICATED BY THE PROSPECT OF ALTERATIONS IN MAINTENANCE MOS'S, 2-LEVEL MAINTENANCE AND HARDWARE INNOVATIONS.	A1004, TOA, APPENDIX U, VOL IX, TRAINING P U-12 PARA "MAINTENANCE TRAINING" AND P U-28, PARA 4.	PM-ILS	PRIOR TO OT II	A1004	TOA, APPENDIX U, VOL IX, TRAINING P U-12. PARA. 'MAINTENANCE TRAINING' AND P U-28, PARA 4.	M		TNG	PEND.T OA AP U VOL IX
2.01/6.03	2	ARE THERE ENOUGH PEOPLE IN THE LHX UNITS TO SUPPORT, MAINTAIN AND OPERATE THE SYSTEM?	THE AMOUNT OF NON MAINTENANCE TASKS PER INDIVIDUAL MAINTAINER MAY INCREASE AS THE MAINTENANCE POPULATION DECREASES.	A1083, HFEA 31-1/17/86 (FOUO)	PM-ILS	OT II	A1004	TOA, APPENDIX U, VOL IX, TRAINING P U-19. PARA. PARA 4.	M	A1083 HFEA P.31		TNG	PEND.T OA AP U VOL IX
	2		WHAT IS THE NUMBER OF SKILLS AND WHAT SKILL LEVELS ARE REQUIRED FOR CURRENT LIGHT FLEET OPERATIONS? LHX SHOULD REDUCE THIS.	R1003 ROC	TRADOC	PRIOR TO OT II	R1003	ROC PAGE 6 PARAGRAPH 9	L		PERSONNEL SKILL		PEND.
4.02/5.01	2	WILL THE USE OF METRIC TOOLS AND MEASUREMENT ADVERSELY AFFECT MAINTENANCE TRAINING?	WHAT IS THE IMPACT OF THE USE OF METRIC MEASURE ON MAINTENANCE AND MAINTENANCE TRAINING?	A1083, HFEA 23-1/17/86 (FOUO)	PM	OT II	A1083	P23 (FOUO)	L	A1083 HFEA P.23		HF-TNG	RES. HFEA

LHX MANPRINT SAMP CRITICAL QUESTION REPORT (LSREP-T)
(SEQUENCED ON CRITICALITY WITHIN MANPRINT DOMAIN)
OPERATOR = 1, MAINTAINER = 2, SUPPORT = 3
(INDEXED ON TYPECD + CSCD)

SAMP CRITICAL QUESTION NUMBER	OPER=1 MAIN=2 SUPT=3	CRITICAL QUESTION	ALLEN DERIVED ISSUE	DOCUMENTATION SUPPORTING ISSUE SELECTION	RESPONSIBLE AGENCY	WHEN RESOLVED	SOURCE DOCUMENT IDNO	PAGE/PARA IN SOURCE DOCUMENT	CRITICALITY SCORE	SOURCE OF SOL'N	RISK	MANPRINT DOMAIN	STATUS
5.01	2	WILL THE USE OF METRIC TOOLS AND MEASUREMENT ADVERSELY AFFECT MAINTENANCE?	WHAT IS THE IMPACT OF THE USE OF METRIC MEASURE ON MAINTENANCE AND MAINTENANCE TRAINING?	A1083, HFEA 23-1/17/86 (FOUO)	PM	OT II	A1083	P23 (FOUO)	L	A1083 HFEA P 23		HF-TNG	RES. HFEA
4.13R	2	WHAT ARE THE TRAINING REQUIREMENTS FOR PERSONNEL OF OTHER AIRCRAFT STATIONED WITH THE LHX?	WHAT ARE THE TRAINING REQUIREMENTS FOR PERSONNEL OF OTHER AIRCRAFT STATIONED WITH THE LHX?	A1004, TOA, APPENDIX U, VOL IX, TRAINING P U-35	TRADOC	PRIOR TO FIELDING	A1004	TOA, APPENDIX U, VOL IX, TRAINING P U-35	L			TNG	PEND. TOA AP U VOL IX
5.10	3	WILL THE DESIGN OF THE LHX ALLOW IT TO BE SERVICED AT THE FARP BY ONLY TWO SOLDIERS WITHOUT GROUND HANDLING EQUIPMENT IN 15 MINUTES?	REQUIRED TURN AROUND TIME IN FARP IS 15 MINUTES WITHOUT GHE. REARMING IS TO BE DONE WITH 2 SOLDIERS PER AIRCRAFT.	A1083, HFEA 44-1/17/86A (FOUO)	LOG OPS	OT II	A1083	P44 (FOUO)	H	A1083 HFEA P 44		HF	PEND. RFP
	3		WILL THE LARGER LHX FLEET RESULT IN AN INCREASE IN THE TOTAL NUMBER OF PERSONNEL REQUIRED TO OPERATE AND ADMINISTER COMPLEX LHX TRAINING DEVICES?	R1003 ROC	TRADOC	PRIOR TO PRODUCTION	R1003	ROC PAGE F-5 PARAGRAPH 7.C	M			MANPWR INST TNG	UNK
5.04	3	WHAT LIGHTING IS REQUIRED TO FACILITATE FARP ACTIVITIES?	AN INTEGRATED APPROACH TO CREW STATION AND DISPLAY LIGHTING IS NEEDED. LIGHTING FOR MAINTENANCE AND FARP HAS NOT BEEN FULLY EVALUATED.	A1083, HFEA 29-1/17/86A (FOUO)	PM	FSD	A1083	P29 (FOUO)	M	A1083 HFEA P.29		HF	PEND. RFP
4.03	3	WHAT TRAINING FOR OPERATORS AND MAINTAINERS SHOULD TAKE PLACE AT THE UNIT?	WHAT ARE THE UNIT TRAINING REQUIREMENTS FOR OPERATORS AND MAINTAINERS IN TERMS OF INITIAL SKILLS, REQUALIFICATION, AND TACTICAL TRAINING?	A1083, HFEA 30-1/17/86 (FOUO)	TRADOC	PRIOR TO FSD	P1038	LHX TSM-ISSUES GENERATED AT 3 DEC 1985 FT RUCKER MEETING	M	A1083 HFEA P.30		TNG	PEND. TOA AP U VOL IX
4.06	3	WILL THE TRAINING PLAN PRODUCE ENOUGH PEOPLE WITH THE RIGHT TRAINING TO SUPPORT THE LHX SYSTEM AS IT IS FIELDED?	IS THE TRAINING PLAN ADEQUATE TO SUPPORT LHX FIELDING AT THE PROJECTED RATE?	A1083, HFEA 33-1/17/86 (FOUO)	PM/TRADOC	PRIOR TO FSD	A1083	P33 (FOUO)	M	A1083 HFEA P.33		TNG	PEND.

nX MANPRINT SMMP CRITICAL QUESTION REPORT (ISREP-7)
(SEQUENCED ON CRITICALITY WITHIN MANPRINT DOMAIN)
OPERATOR = 1, MAINTAINER = 2, SUPPORT = 3
(INDEXED ON TYPECD + CSCD)

SMMP CRITICAL QUESTION NUMBER	OPER=1 MAIN=2 SUPT=3	CRITICAL QUESTION	ALLEN DERIVED ISSUE	DOCUMENTATION SUPPORTING ISSUE SELECTION	RESPONSIBLE AGENCY	WHEN RESOLVED	SOURCE DOCUMENT IDNO	PAGE/PARA IN SOURCE DOCUMENT	CRITI-CALITY SCORE	SOURCE OF SOUL'N	RISK	MANPRINT DOMAIN	STATUS
7 10	3	HOW MUCH WILL STRESS AND FATIGUE AFFECT MISSION ACCOMPLISHMENT?	WILL THE FATIGUE AND STRESS FROM THE MAINTENANCE BURDEN OF SUSTAINED CONTINUOUS OPERATIONS ADVERSELY AFFECT MISSION ACCOMPLISHMENT?	A1083, HFEA 39-1/17/86A (FOUO)	PM	OT II	A1083	P39 (FOUO)	M	A1083 HFEA P.39		HF	PEND.
	3		OPTIMAL PATIENT CARE NOT PROVIDED. NO OXYGEN,COOLING, OR OVER PRESSURE PROVIDED FOR PATIENTS	A1075, HH ISSUES, P-16	PM	RFP	A1075	HH ISSUES, P-16	M	R1010 RFP P2.3.2 .8.8.2		HH	RES. RFP
4 13R	3	WHAT ARE THE TRAINING REQUIREMENTS FOR PERSONNEL OF OTHER AIRCRAFT STATIONED WITH THE LHX?	WHAT ARE THE TRAINING REQUIREMENTS FOR PERSONNEL OF OTHER AIRCRAFT STATIONED WITH THE LHX?	A1004, TOA, APPENDIX D, VOL IX, TRAINING P D-35	TRADOC	PRIOR TO FIELDING	A1004	TOA, APPENDIX D, VOL IX, TRAINING P D-35	L			TNG	PEND.T OA AP D VOL IX

ISSUES, Impact, and Proposed Solution Reported by
TYPECODE and CRITICALITY SCORE Sequence

The following is a listing of the Allen derived Issue Statement; the impact of the issue; the proposed solution; the responsible agency; and the event by which the issue is to be resolved. The records are shown in a sequence which sorts the records first by the TYPECODE (Operation O=1, Maintenance M=2, Support S=3), then sorts them within each type code class by the CRITICALITY SCORE (CRITSCR: Essential=E, High=H, Medium=M, Low=L). Issues in the operator domain will be shown first, followed by those in the maintenance domain, and then those in the support domain. This listing is arranged in the same sequence as the immediately preceding listing.

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(LISTERN.PRG)
IN CRITICALITY SCORE SEQUENCE WITHIN MANPRINT DOMAIN

MAINT=2 SUP=3	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED	ISSUE CODE
*	CAN A SINGLE PILOT OPERATE THE LHX IN THE GIVEN OPERATIONAL MODE SUMMARY AND MISSION PROFILES?	BECAUSE OF ANTICIPATED HIGH COMPLEXITY OF LHX, TRAINING TIME WOULD PROBABLY BE HIGHER THAN THE FOOTPRINT TRAINING TIME UNLESS MODERN HIGH TECH TRAINING METHODS ARE EMPLOYED	USE OF INDIVIDUALIZED INSTRUCTION /SIMULATION COULD PROVIDE PILOTS MORE "QUALITY TIME" THAN BY USING CONVENTIONAL METHODS.	PM	OT II	01012
1	CAN A PILOT SUCCESSFULLY ENGAGE OTHER HELICOPTERS IN AIR TO AIR COMBAT WHILE FLYING THE A/C?	THE DEMANDS OF FLYING MAY INTERFERE WITH ABILITY TO ACQUIRE ENEMY A/C DURING AIR TO AIR COMBAT CAUSING EITHER LOSS OF A/C BY FIRE, OR BY LOSS OF CONTROL	(UNKNOWN)	PM/TRADOC	OT II	01013
*	CAN AN EFFECTIVE AND ACCEPTABLE HELMET MOUNTED DISPLAY BE DEVELOPED FOR LHX?	INADEQUATE HMD WILL DEGRADE PILOT PERFORMANCE AND HINDER MISSION PERFORMANCE	WORK BOTH TECHNOLOGY AND HUMAN FACTORS AREAS TO PROVIDE BEST HMD FOR LHX, APPROPRIATE TRAINING	PM	FSD	01022
1	DESIGN OF LHX NEEDS TO ASSURE THAT ALL EMERGENCY PROCEDURES CAN BE PERFORMED BY A SINGLE PILOT.	OCCUPANT AND AIRCRAFT SURVIVABILITY DEPENDS UPON THE CAPABILITY TO SUCCESSFULLY PERFORM EMERGENCY PROCEDURES.	ASSESS LHX EMERGENCY PROCEDURES AND ESTABLISH APPROPRIATE DESIGN REQUIREMENTS	PM	PRIOR TO FSD	01040
1	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	IF PART OF THE MISSION EQUIPMENT CAPABILITY IS DISABLED, THE PILOT MAY BE UNABLE TO COMPLETE THE MISSION AND/OR RETURN HOME.	PERFORM ANALYSES, SIMULATION AND OPERATIONAL EVALUATION TO ASSURE THAT THE SYSTEM DESIGN PROVIDES SUFFICIENT FLEXIBILITY FOR MISSION SUCCESS.	PM	OT II	01042

PAGE 2

DOMAIN
OPER=?
MAINT=2
SUPT=3

LHX ISSUES DATA BASE [illegible]
[illegible]
IN CRITICALITY SCORE SEQUENCE WITHIN MANPRINT DOMAIN

	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED	ISSUE CODE
	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	IF PART OF THE MISSION EQUIPMENT CAPABILITY IS DISABLED, THE PILOT MAY BE UNABLE TO COMPLETE THE MISSION AND/OR RETURN HOME	PERFORM ANALYSES, SIMULATION AND OPERATIONAL EVALUATION TO ASSURE THAT THE SYSTEM DESIGN PROVIDES SUFFICIENT FLEXIBILITY FOR MISSION SUCCESS.	PM	OT II	01042
	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	IF PART OF THE MISSION EQUIPMENT CAPABILITY IS DISABLED, THE PILOT MAY BE UNABLE TO COMPLETE THE MISSION AND/OR RETURN HOME.	PERFORM ANALYSES, SIMULATION AND OPERATIONAL EVALUATION TO ASSURE THAT THE SYSTEM DESIGN PROVIDES SUFFICIENT FLEXIBILITY FOR MISSION SUCCESS.	PM	OT II	01042
1	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	IF PART OF THE MISSION EQUIPMENT CAPABILITY IS DISABLED, THE PILOT MAY BE UNABLE TO COMPLETE THE MISSION AND OR RETURN HOME.	PERFORM ANALYSES, SIMULATION AND OPERATIONAL EVALUATION TO ASSURE THAT THE SYSTEM DESIGN PROVIDES SUFFICIENT FLEXIBILITY FOR MISSION SUCCESS.	PM	OT II	01042

CHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(LISTERN PRC)
IN CRITICALITY SCORE SEQUENCE WITHIN MANPRINT DOMAIN

DOMAIN
OPER =1
MAINT=2
SUPT =3

	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED	ISSUE CODE
1	DOES THE SINGLE CREW MEMBER DESIGN ALLOW THE PILOT THE FLEXIBILITY TO REACT TO MISSION CHANGES, DEGRADED EQUIPMENT MODES, AND EFFECTIVELY PERFORM THE MISSION?	IF PART OF THE MISSION EQUIPMENT CAPABILITY IS DISABLED, THE PILOT MAY BE UNABLE TO COMPLETE THE MISSION AND/OR RETURN HOME.	PERFORM ANALYSES, SIMULATION AND OPERATIONAL EVALUATION TO ASSURE THAT THE SYSTEM DESIGN PROVIDES SUFFICIENT FLEXIBILITY FOR MISSION SUCCESS.	PM	OT II	01042
1	CAN THE TARGET ACQUISITION PROCESS BE SUCCESSFULLY AUTOMATED TO ASSURE EFFECTIVE SINGLE CREW MEMBER OPERATIONS?	ACCURATE AND RAPID ACQUISITION OF TARGETS IS CRITICAL TO OPERATIONAL EFFECTIVENESS.	PRIOR TO FINAL CREW COMPLEMENT DECISION, EVALUATE THE TECHNOLOGIES THROUGH SIMULATION AND OPERATIONAL ASSESSMENTS.	PM	FSD	01043
1	CAN TECHNOLOGY ACCOMPLISH THE AUTOMATIC FLIGHT CONTROL WHICH IS CRITICAL TO SINGLE CREW MEMBER OPERATION?	WORKLOAD MAY INCREASE TO THE POINT WHERE THE AVIATOR IS UNABLE TO FLY AND FIGHT SIMULTANEOUSLY.	DETERMINE ACTUAL CAPABILITIES OF PROPOSED FLIGHT CONTROL AUTOMATION AND EVALUATE THE CAPABILITY TO ACHIEVE SINGLE CREW MEMBER GOALS	PM	FSD	01045

HX ISSUES DATA BASE LISTING OF MEMO FIELDS
(LISTERN PRG)
ALL APPLICABLE ISSUE SEQUENCE WITHIN MANPRINT DOMAIN

DOMAIN
OPER =1
MAINT=2
SUPT =3

	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED	ISSUE CODE
1	WHAT SYSTEMS ARE AUTOMATED AND HOW SPECIFIC AUTOMATION ACCOMMODATES SINGLE CREW MEMBER OPERATION HAS NOT BEEN COMPLETELY ASSESSED. HF DESIGN STANDARDS DO NOT FULLY ADDRESS ISSUES AND TRADE-OFFS IN AUTOMATION AND COGNITIVE OVERLOAD	IF MAN-MACHINE INTEGRATION WITH AUTOMATED SYSTEMS IS NOT FULLY DEVELOPED, SINGLE CREW MEMBER LHX MISSION ACCOMPLISHMENT AND SURVIVABILITY WILL BE GREATLY REDUCED	ACCELERATE DEVELOPMENT OF CRITICAL INFORMATION PROCESSING TECHNOLOGIES CONDUCT ANALYSIS, SIMULATION AND EVALUATIONS TO ASSESS CAPABILITIES. REVISE HF DESIGN STANDARDS. DEVELOP EFFECTIVE TRAINING	PM	FSD	01046
1	WHAT SYSTEMS ARE AUTOMATED AND HOW SPECIFIC AUTOMATION ACCOMMODATES SINGLE CREW MEMBER OPERATION HAS NOT BEEN COMPLETELY ASSESSED. HF DESIGN STANDARDS DO NOT FULLY ADDRESS ISSUES AND TRADE-OFFS IN AUTOMATION AND COGNITIVE OVERLOAD	IF MAN-MACHINE INTEGRATION WITH AUTOMATED SYSTEMS IS NOT FULLY DEVELOPED, SINGLE CREW MEMBER LHX MISSION ACCOMPLISHMENT AND SURVIVABILITY WILL BE GREATLY REDUCED	ACCELERATE DEVELOPMENT OF CRITICAL INFORMATION PROCESSING TECHNOLOGIES. CONDUCT ANALYSIS, SIMULATION AND EVALUATIONS TO ASSESS CAPABILITIES. REVISE HF DESIGN STANDARDS. DEVELOP EFFECTIVE TRAINING.	PM	FSD	01046
1	AN INTEGRATED APPROACH TO CR W STATION LIGHTING IS NEEDED. LIGHTING FOR MAINTENANCE AND FARP HAS NOT BEEN FULLY EVALUATED	CREWSTATION, MAINTENANCE AND FARP LIGHTING HAVE A CRITICAL IMPACT ON THE AIRCREW'S ABILITY TO ACCOMPLISH THE COMBAT MISSION.	PERFORM CREWSTATION LIGHTING ANALYSIS THAT ADDRESSES THE UNIQUE ASPECT OF CREW STATION EQUIPMENT AND PROTECTIVE DEVICES. INCLUDE MAINTENANCE AND FARP ACTIVITIES TO INSURE A FULLY INTEGRATED SYSTEM FOR LHX.	PM	FSD	01047
1	THE HUMAN INTERACTION AND WORKLOAD RELATED TO FLYING THE AIRCRAFT WITH A "SIDE-ARM-CONTROLLER" AND CONTROLLING OTHER FUNCTIONS AT THE SAME TIME HAS NOT BEEN FULLY ASSESSED.	EFFECTIVE PILOT PERFORMANCE AND MISSION ACCOMPLISHMENT DEPENDS UPON WORKLOAD REDUCTION	EVALUATE THE EFFECTIVENESS OF THE AVIATOR FLYING THE LHX USING A 'SIDE-ARM-CONTROLLER' WHILE CONCURRENTLY CONTROLLING OTHER AIRCRAFT FUNCTIONS.	PM	FSD	01048
1	THE SYSTEM FOR NAVIGATING NOE AT NIGHT AND IN ADVERSE WEATHER CONDITIONS, WHICH REQUIRES A WIDE FIELD OF VIEW WITH SUITABLE SENSITIVITY AND RESOLUTION, IS A HIGH RISK DEVELOPMENT.	WITHOUT THIS CAPABILITY, MISSION COMPLETION WILL BE SEVERELY DEGRADED AT NIGHT AND IN ADVERSE WEATHER.	ACCELERATE THE HIGH RISK DEVELOPMENT OF REQUIRED SENSOR AND DISPLAY TECHNOLOGIES. ASSURANCE OF AVAILABLITY AND EFFECTIVENESS SHOULD BE ESTABLISHED PRIOR TO FSD.	PM	FSD	01049

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(LISTERN PRG)
IN CRITICALITY SCORE SEQUENCE WITHIN MANPRINT DOMAIN

DOMAIN =
SCEN =
MAINT=2
SUPT =3

	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED	ISSUE CODE
1	THE SYSTEM FOR NAVIGATING NOE AT NIGHT AND IN ADVERSE WEATHER CONDITIONS, WHICH REQUIRES A WIDE FIELD OF VIEW WITH SUITABLE SENSITIVITY AND RESOLUTION, IS A HIGH RISK DEVELOPMENT	WITHOUT THIS CAPABILITY, MISSION COMPLETION WILL BE SEVERELY DEGRADED AT NIGHT AND IN ADVERSE WEATHER	ACCELERATE THE HIGH RISK DEVELOPMENT OF REQUIRED SENSOR AND DISPLAY TECHNOLOGIES. ASSURANCE OF AVAILABLITY AND EFFECTIVENESS SHOULD BE ESTABLISHED PRIOR TO FSD	PM	FSD	01049
1	VISUAL DISPLAY PARAMETERS MUST FALL WITHIN ACCEPTABLE OPERATIONAL LIMITS	IMPROPER INFORMATION DISPLAY AND INADEQUATE FIELD OF VIEW CAN DEGRADE PILOT PERFORMANCE	ENSURE THAT DISPLAY DESIGN PARAMETERS ARE WITHIN RECOGNIZED LIMITS. CONDUCT RESEARCH TO DETERMINE THE FIELD OF VIEW REQUIRED FOR HELICOPTER OPERATIONS.	PM	FSD	01055
	ANTHROPOMETRIC REQUIREMENTS HAVE NOT BEEN ESTABLISHED FOR THE LHX.	ANTHROPOMETRIC REQUIREMENTS HAVE A SIGNIFICANT EFFECT ON CONTROLS AND DISPLAYS, SEATING ADJUSTMENTS AND HELMET SIZING.	ANTHROPOMETRIC REQUIREMENTS ARE ESTABLISHED IN 1ST DRAFT RFP	PM	RFP	01056
	HOW SUCCESSFULLY DOES THE CURRENT LHX DESIGN DEAL WITH HUMAN FACTORS ISSUES IN COGNITIVE OVERLOAD AND PILOT FATIGUE DURING COMBAT OPERATIONS, CONTINUOUS OPERATION, AND NBC OPERATIONS?	COGNITIVE OVERLOAD. IF HUMAN FACTORS ARE NOT ADDRESSED IN THE FORM OF DESIGN CRITERIA, THE EFFECTIVENESS OF THE SYSTEM MAY SUFFER.	(UNKNOWN)	PM	OT II	01009
1	HOW SUCCESSFULLY DOES THE CURRENT LHX DESIGN DEAL WITH HUMAN FACTORS ISSUES IN COGNITIVE OVERLOAD AND PILOT FATIGUE DURING COMBAT OPERATIONS, CONTINUOUS OPERATION, AND NBC OPERATIONS?	COGNITIVE OVERLOAD. IF HUMAN FACTORS ARE NOT ADDRESSED IN THE FORM OF DESIGN CRITERIA, THE EFFECTIVENESS OF THE SYSTEM MAY SUFFER.	(UNKNOWN)	PM	OT II	01009

DOMAIN
CRES =1
MAINT=2
SUPT =3

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(LISTERA PRG)
IN CRITICALITY SCORE SEQUENCE WITHIN MANPRINT DOMAIN

	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED	ISSUE CODE
1	IS CONTRACTOR DELIVERED TRAINING LIMITED TO PILOT TRAINING? STATEMENT IN ROC IS NOT CLEAR	POTENTIAL IMPACT ON TRAINING	CONTRACTOR DELIVERED TRAINING IS ADDRESSED IN 1ST DRAFT RFP AND IS NOT LIMITED TO PILOT TRAINING.	PM/TRADOC	TOA AP U VOL IX, TNG	01017
1	CAN TRAINING INCREASE THE SCAT PILOT'S ABILITY TO PERFORM UNDER HIGH TASK LOADING?	APPROPRIATE TRAINING CAN IMPROVE PILOT'S PERFORMANCE UNDER HIGH WORKLOAD CONDITIONS	(UNKNOWN)	TRADOC	OT II	01019
	CAN LHX FLIGHT HELMET WITH HMD SIGHTING SYSTEM, AND POSSIBLE NBC, LASER, AND FLASH BLINDESS PROTECTIVE DEVICES MEET WEIGHT REQUIREMENTS?	EXCESSIVE HELMET WEIGHT DEGRADES CREW AND MISSION PERFORMANCE AND POSES POTENTIAL HEALTH HAZARD.	DESIGN LHX HELMET SYSTEM TO MEET 3.95 POUND CRITERIA WITH PROPER CENTER OF GRAVITY AND BALLISTIC AND EYE PROTECTION TO MEET ANSI Z87.1 CRITERIA	PM	FSD	01023
	FATIGUE, STRESS AND ANXIETY MAY DEGRADE SINGLE CREW MEMBER PERFORMANCE ESPECIALLY IN DEGRADED MODES OF OPERATION.	FATIGUE/STRESS/ANXIETY HAVE GREATER IMPACT ON PERFORMANCE WITHOUT A 'BUDDY' PRESENT.	INTEGRATED, AUTOMATED COCKPIT DESIGN WORKLOAD EVALUATIONS, APPROPRIATE TRAINING	USAARL	OT II	01024
	FATIGUE, STRESS AND ANXIETY MAY DEGRADE SINGLE CREW MEMBER PERFORMANCE ESPECIALLY IN DEGRADED MODES OF OPERATION.	FATIGUE/STRESS/ANXIETY HAVE GREATER IMPACT ON PERFORMANCE WITHOUT A 'BUDDY' PRESENT.	INTEGRATED, AUTOMATED COCKPIT DESIGN WORKLOAD EVALUATIONS, APPROPRIATE TRAINING	USAARL	OT II	01024

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(LISTERN PRG)
IN CRITICALITY SCORE SEQUENCE WITHIN MANPRINT DOMAIN

DOMAIN
USER #
MAINT=2
SUPT =3

ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED	ISSUE CODE
NBC AND COLD WEATHER PROTECTIVE CLOTHING CAN HAVE AN ADVERSE IMPACT ON SOLDIER PERFORMANCE	POTENTIAL REDUCTION IN SOLDIER PERFORMANCE AND MISSION SUCCESS	ASSURE THAT THE LHX DESIGN IS COMPATIBLE WITH PROTECTIVE CLOTHING PLACE HIGH PRIORITY ON NBC/COLD WEATHER EQUIPMENT DEVELOPMENT.	PM	OT II	01028
LASERS AND IR RADIATION CAN PRODUCE VISUAL DAMAGE DURING COMBAT AND TRAINING. RF AND MICROWAVE EXPOSURES ARE POTENTIAL HEALTH HAZARDS.	POTENTIAL AIR AND GROUND CREW CASUALTIES AND DEGRADED MISSION PERFORMANCE.	EQUIPMENT SHOULD COMPLY WITH MIL-STD 1425, AR40-46 AND AR40-583. LASERS SHOULD HAVE A SAFE MODE FOR USE DURING TRAINING. AIR AND GROUND CREW TRAINING IN SAFE OPERATION AND MAINTENANCE.	PM	TT	01031
WHAT ARE THE TRAINING REQUIREMENTS FOR THE SECOND CREW MEMBER IN THE UTILITY AIRCRAFT? WHAT ARE THE CREW STATION DESIGN CRITERIA?	ISSUE IMPACTS ON CREW STATION DESIGN, ON PERSONNEL AND TRAINING, UNIT MANNING AND ULTIMATELY, ON MISSION PERFORMANCE	OPTIMUM DESIGN OF CREW STATION, DEFINITION OF JOB AND PERSONNEL QUALIFICATION, AND DEVELOPMENT OF APPROPRIATE TRAINING.	TRADOC	PRIOR TO OT II	01032
WHAT ARE THE CREW STATION DESIGN CRITERIA FOR THE LHX-UTILITY?	ISSUE IMPACTS ON CREW STATION DESIGN, ON PERSONNEL AND TRAINING, UNIT MANNING AND ULTIMATELY, ON MISSION PERFORMANCE	OPTIMUM DESIGN OF CREW STATION DEFINITION OF JOB AND PERSONNEL QUALIFICATION, AND DEVELOPMENT OF APPROPRIATE TRAINING	PM	PRIOR TO OT II	01064
CLEAR SPEECH COMMUNICATION AND AUDIO CUES ARE CRITICAL FOR SINGLE PILOT OPERATIONS. IMPROVED SPEECH INTELLIGIBILITY OVER CURRENT AIRCRAFT IS NECESSARY.	LACK OF IMPROVED COMMUNICATIONS CAN INCREASE OPERATOR WORKLOAD AND REDUCE COMBAT EFFECTIVENESS	DEVELOP IMPROVED COMMUNICATIONS FOR LHX TO COINCIDE WITH LHX FSD	PM	FSD	01033

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(LISTERN PRG)
IN CRITICALITY SCORE SEQUENCE WITHIN MANPRINT DOMAIN

DOMAIN
OPER=1
MAINT=2
SUPT =3

	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED	ISSUE CODE
1	LHX CONCEPTS PROVIDE EITHER: # 1 HELMET MOUNTED N GHT VISION SYSTEM, OR #2, NIGHT VISION GOGGLES FOR UTILITY PILOT. #1 LEAVES SECOND CREW MEMBER WITH NO N.V. CAPABILITY. WITH #2 CURRENT SAFETY AND OPERATION CONSTRAINTS PRECLUDE SINGLE PILOT OPERATION AT NIGHT.	REDUCED NIGHT TIME OPERATING CAPABILITY AND/OR INCREASED HAZARDS, ESPECIALLY AT NOE ALTITUDES.	2ND DRAFT RFP SPECIFIES USE OF NIGHT VISION GOGGLES.	PM	RFP	01034
1	THE RESOLUTION/ACCURACY OF THE DIGITAL DATA BASE FOR THE MAP DISPLAY IS LESS THAN THAT REQUIRED FOR NOE/ADVERSE WEATHER NAVIGATION.	CRITICAL TO SINGLE PILOT OPERATIONS. REDUCTION OF PILOT NAVIGATION WORK LOAD MAY NOT REACH THE DESIRED LEVEL.	EVALUATE PROPOSED SYSTEM CAPABILITIES PRIOR TO FINAL CREW COMPLEMENT DECISION.	PM	FSD	01035
1	SCAT COMBAT MISSIONS INCLUDE A REQUIREMENT FOR THE PILOT TO MAINTAIN FLIGHT CONTROL AND/OR PERFORM A TARGET DESIGNATION TASK WHILE EFFECTIVELY USING THE TURRETED GUN IN AN OFF-AXIS ENGAGEMENT. CAN THE PILOT CONCURRENTLY PERFORM THESE TASKS SUCCESSFULLY?	IF PILOT WORKLOAD IS TOO HIGH OPERATIONAL EFFECTIVENESS AND SURVIVABILITY OF THE SCAT WILL BE REDUCED	THROUGH SIMULATION AND SURROGATE AIRCRAFT OPERATION, EVALUATE EFFECTIVENESS OF OFF-AXIS ENGAGEMENT WHILE PERFORMING FLIGHT TASKS PRIOR TO FINAL CREW COMPLEMENT DECISION.	TRADOC	OT II	01036
1	VOICE RECOGNITION SYSTEMS ARE NECESSARY TO REDUCE PILOT WORKLOAD. TECHNOLOGY DOES NOT APPEAR SUFFICIENTLY MATURE TO MEET REQUIREMENTS UNDER COMBAT CONDITIONS.	PILOT WORKLOAD WOULD BE INCREASED TO A CRITICAL DEGREE AND MISSION PERFORMANCE WOULD BE DEGRADED.	DEVELOP VOICE RECOGNITION SYSTEM THAT WILL OPERATE EFFECTIVELY IN THE COMBAT ENVIRONMENT.	PM	FSD	01039
1	HOW CAN IN-FLIGHT DATA ENTRY SYSTEMS REDICE WORKLOAD TO LEVELS REQUIRED FOR SUCCESSFUL OPERATIONS?	AVIATOR MAY NEED TO FOCUS ATTENTION ON DATA ENTRY INSIDE THE COCKPIT WHEN HE SHOULD BE CONCENTRATING OUTSIDE.	CONDUCT ASSESSMENT/DEMONSTRATION OF THE CONCEPT TO VALIDATE MANAGEABLE PILOT WORKLOAD.	PM	PRIOR TO FSD	01044

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(LISTERA.PRG)
IN CRITICALITY SCORE SEQUENCE WITHIN MANPRINT DOMAIN

DOMAIN
OPER =1
MAINT=2
SUPT =3

	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED	ISSUE CODE
1	CAN SINGLE PILOT OPERATION BE ACHIEVED WITHOUT MILLIMETER WAVE RADAR & INTEGRATED COMMUNICATION, NAVIGATION, IDENTIFICATION AVIONICS?	ABSENCE OF EITHER OR BOTH SYSTEMS MAY RESULT IN MISSION DEGRADATION.	UNKNOWN	PM	P3I PROGRAM	01059
	CAN SINGLE PILOT OPERATION BE ACHIEVED WITHOUT MILLIMETER WAVE RADAR & INTEGRATED COMMUNICATION, NAVIGATION, IDENTIFICATION AVIONICS?	ABSENCE OF EITHER OR BOTH SYSTEMS MAY RESULT IN MISSION DEGRADATION	UNKNOWN	PM	P3I PROGRAM	01059
	CAN SINGLE PILOT OPERATION BE ACHIEVED WITHOUT MILLIMETER WAVE RADAR & INTEGRATED COMMUNICATION, NAVIGATION, IDENTIFICATION AVIONICS?	ABSENCE OF EITHER OR BOTH SYSTEMS MAY RESULT IN MISSION DEGRADATION.	UNKNOWN	PM	P3I PROGRAM	01059
1	HOW CAN SCAT TRAINING BE DONE AT THE UNIT LEVEL WITHOUT PROHIBITIVELY EXPENSIVE FIELDING TO UNITS OF A 2-PLACE LHX MODIFICATION?	A 2 PLACE AIRCRAFT PERMITS THE INSTRUCTOR TO OVER-RIDE THE STUDENT WHEN STUDENT GETS INTO TROUBLE. A SINGLE PLACE LHX LACKS THIS BACKUP, RESULTING IN UNRECOVERABLE ERRORS, LOSS OF AIRCRAFT AND LIFE	(UNKNOWN)	TRADOC	TGA AP J VOL IX TNG	01002
1	CAN THE AVAILABLE OPERATORS (PILOTS) BE SUCCESSFULLY TRAINED WITHIN THE TIME, COST OF CURRENT SYSTEMS, AND WITHOUT INCREASING THE CURRENT TRAINING FACILITIES?	THE PROPOSED LHX IS A HIGHLY COMPLEX WEAPONS SYSTEM PLATFORM AND MAY REQUIRE APTITUDES THAT ARE NOT AVAILABLE IN SUFFICIENT QUANTITY AMONG THE POPULATION THAT FEEDS THE PILOT POOL. IF THIS IS TRUE, THEN PILOTS WITH LOWER APTITUDES WOULD HAVE TO BE ACCESSED AND TRAINING TIME AND COSTS INCREASED CORRESPONDINGLY.	(UNKNOWN)	TRADOC	PRIOR TO FSD	01003

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(LISTERN.PRG)
IN CRITICALITY SCORE SEQUENCE WITHIN MANPRINT DOMAIN

DOMAIN
OPER =1
MAINT=2
SUPT =3

	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED	ISSUE CODE
	CAN THE AVAILABLE OPERATORS (PILOTS) BE SUCCESSFULLY TRAINED WITHIN THE TIME, COST OF CURRENT SYSTEMS, AND WITHOUT INCREASING THE CURRENT TRAINING FACILITIES?	THE PROPOSED LHX IS A HIGHLY COMPLEX WEAPONS SYSTEM PLATFORM AND MAY REQUIRE APTITUDES THAT ARE NOT AVAILABLE IN SUFFICIENT QUANTITY AMONG THE POPULATION THAT FEEDS THE PILOT POOL. IF THIS IS TRUE, THEN PILOTS WITH LOWER APTITUDES WOULD HAVE TO BE ACCESSED AND TRAINING TIME AND COSTS INCREASED CORRESPONDINGLY.	(UNKNOWN)	TRADOC	PRIOR TO FSD	01003
	CAN THE AVAILABLE OPERATORS (PILOTS) BE SUCCESSFULLY TRAINED WITHIN THE TIME, COST OF CURRENT SYSTEMS, AND WITHOUT INCREASING THE CURRENT TRAINING FACILITIES?	THE PROPOSED LHX IS A HIGHLY COMPLEX WEAPONS SYSTEM PLATFORM AND MAY REQUIRE APTITUDES THAT ARE NOT AVAILABLE IN SUFFICIENT QUANTITY AMONG THE POPULATION THAT FEEDS THE PILOT POOL. IF THIS IS TRUE, THEN PILOTS WITH LOWER APTITUDES WOULD HAVE TO BE ACCESSED AND TRAINING TIME AND COSTS INCREASED CORRESPONDINGLY.	(UNKNOWN)	TRADOC	PRIOR TO FSD	01003
	INADEQUATE VENTILATION, HEATING OR COOLING COULD ADVERSELY AFFECT CREW AND PASSENGER PEFORMANCE AND COULD CREATE A HEALTH HAZARD.	TEMPERATURE EXTREMES AND/OR CONTAMINATION CAN IMPACT CREW AND PASSENGER PERFORMANCE	PROVIDE A HYBRID PRESSURIZED PROTECTIVE SYSTEM TO PREVENT ADVERSE EFFECTS ON ENVIRONMENTAL CONDITIONS AND/OR COMBAT CONTAMINATION.	PM	FSD	01027
	CRASHWORTHINESS OF LHX IS DEFINED AS "MODIFIED" MIL-STD-1290, HOWEVER, EXTENT OF MODIFICATION IS UNDEFINED.	IMPROVED CRASHWORTHINESS WILL REDUCE INJURIES, DEATHS AND AIRCRAFT LOSSES.	DEFINE THE "MODIFIED " MIL-STD-1290 CRITERIA PRIOR TO START OF FSED.	PM	PRIOR TO FSD	01029

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(LISTERN PRG)
IN CRITICALITY SCORE SEQUENCE WITHIN MANPRINT DOMAIN

DOMAIN
OPER =1
MAINT=2
SUPT =3

DOMAIN	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED	ISSUE CODE
1	STEADY STATE AND IMPULSE NOISE LEVELS OF THE LHX MAY DEGRADE AIR AND GROUND CREWS' PERFORMANCE AND MAY POSE HEALTH HAZARDS.	DEGRADED CREW PERFORMANCE AND/OR INJURY COULD ADVERSELY IMPACT MISSION ACCOMPLISHMENT.	DESIGN LHX TO MEET APPROPRIATE NOISE LIMITS OF MIL-STD-1204, TB-MED-501 AND MIL-STD-1474. PROVIDE AIR AND GROUND CREWS WITH HEARING PROTECTION EQUAL TO OR BETTER THAN THE SPH-4 HELMET.	PM	TT	01030
1	FULL CAPABILITIES AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCE ACTIVITIES.	COMBAT EFFECTIVENESS OF LHX WILL BE HIGHLY DEPENDENT ON GROUND FACILITIES FOR MISSION PLANNING AND MAINTENANCE	CONDUCT AN IN DEPTH ASSESSMENT OF THE AIRCREW AND MAINTAINER NEEDS AND ESTABLISH DETAILED REQUIREMENTS FOR MISSION PLANNING AND MAINTENANCE WORK STATION CAPABILITIES.	TRADOC	PRIOR TO OT II	01037
1	FULL CAPABILITIES AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCE ACTIVITIES.	COMBAT EFFECTIVENESS OF LHX WILL BE HIGHLY DEPENDENT ON GROUND FACILITIES FOR MISSION PLANNING AND MAINTENANCE	CONDUCT AN IN DEPTH ASSESSMENT OF THE AIRCREW AND MAINTAINER NEEDS AND ESTABLISH DETAILED REQUIREMENTS FOR MISSION PLANNING AND MAINTENANCE WORK STATION CAPABILITIES.	TRADOC	PRIOR TO OT II	01037
1	FULL CAPABILITIES AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCE ACTIVITIES.	COMBAT EFFECTIVENESS OF LHX WILL BE HIGHLY DEPENDENT ON GROUND FACILITIES FOR MISSION PLANNING AND MAINTENANCE	CONDUCT AN IN DEPTH ASSESSMENT OF THE AIRCREW AND MAINTAINER NEEDS AND ESTABLISH DETAILED REQUIREMENTS FOR MISSION PLANNING AND MAINTENANCE WORK STATION CAPABILITIES.	TRADOC	PRIOR TO OT II	01037

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(LISTERN PRG)
IN CRITICALITY SCORE SEQUENCE WITHIN MANPRINT DOMAIN

DOMAIN
OPER =1
MAINT=2
SUPT =3

	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED	ISSUE CODE
1	FULL CAPABILITIES AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCE ACTIVITIES	COMBAT EFFECTIVENESS OF LHX WILL BE HIGHLY DEPENDENT ON GROUND FACILITIES FOR MISSION PLANNING AND MAINTENANCE	CONDUCT AN IN DEPTH ASSESSMENT OF THE AIRCREW AND MAINTAINER NEEDS AND ESTABLISH DETAILED REQUIREMENTS FOR MISSION PLANNING AND MAINTENANCE WORK STATION CAPABILITIES.	TRADOC	PRIOR TO OT II	01037
1	IS THE SINGLE CREWMEMBER LHX MORE OR LESS SURVIVABLE THAN A TWO CREWMEMBER AIRCRAFT?	MISSION ACCOMPLISHMENT AND REDUCTION OF AVIATION ASSET LOSSES DEPEND UPON HIGH SURVIVABILITY	PRIOR TO FINAL CREW COMPLEMENT DECISION, COMPLETE THE SURVIVABILITY ANALYSIS RELATED TO CREW SIZE AS PART OF THE TRADOC COEA.	PM	TT	01041
1	WHAT ARE THE UNIT TRAINING REQUIREMENTS FOR OPERATORS AND MAINTAINERS IN TERMS OF INITIAL SKILLS, REQUALIFICATION AND TACTICAL TRAINING?	LESS THAN ADEQUATE TRAINING AT THE UNIT LEVEL WILL REDUCE COMBAT EFFECTIVENESS.	CONTINUE ONGOING ANALYSIS AND RESOLVE ISSUE PRIOR TO FSD.	TRADOC	PRIOR TO FSD	01051
1	IS THE TRAINING PLAN ADEQUATE TO SUPPORT LHX FIELDING AT THE PROJECTED RATE?	MISMATCH BETWEEN AVAILABILITY OF AIRCRAFT AND AVAILABILITY OF TRAINED PERSONNEL CAN DELAY LHX DEPLOYMENT.	COMPLETE ONGOING ANALYSES (BOIP, ICTP, CONTRACTORS) AND RESOLVE ISSUE PRIOR TO FSD.	PM/TRADOC	PRIOR TO FSD	01052

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(LISTERN PKG)
IN CRITICALITY SCORE SEQUENCE WITHIN MANPRINT DOMAIN

DOMAIN OPER =1 MAINT=2 SUPT =3	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED	ISSUE CODE
1	PRODUCT IMPROVEMENT MUST BE FULLY INTEGRATED TO ASSURE IMPROVED SYSTEM PERFORMANCE	PILOT AND MAINTENANCE WORKLOAD MUST NOT BE INCREASED AT THE EXPENSE OF MISSION PERFORMANCE	ASSURE THAT THE KNOWN PREPLANNED PRODUCTION IMPROVEMENTS ARE INTEGRATED INTO THE LHX SYSTEM DESIGN.	PM	START OF P3I PROGRAM	01053
1	WILL THE LHX DESIGN TAKE ADVANTAGE OF COMPUTER ASSISTED TRAINING EMBEDDED TRAINING) TECHNOLOGIES FOR INITIAL AND UNIT TRAINING?	ADVANCES IN TRAINING TECHNOLOGY MAY REDUCE INSTRUCTOR REQUIREMENTS, IMPROVE TRAINING QUALITY CONTROL REDUCE INITIAL TRAINING TIME AND IMPROVE TRAINING IN UNITS.	COMPLETE ONGOING ANALYSES (CTEA, CONTRACTOR) AND RESOLVE ISSUE PRIOR TO FSED.	PM	FSD	01054
1	HOW DO PSYCHOMOTOR AND COGNITIVE PERFORMANCE REQUIREMENTS FOR LHX COMPARE WITH THOSE OF AIRCRAFT BEING REPLACED OR OTHER AIRCRAFT IN THE DOD INVENTORY?	IMPACT ON FEASIBILITY OF SINGLE PILOT OPERATION	ARTI RESULTS. ARMY/NASA CREW STATION SIMULATION STUDIES.	PM/HEL	RFP	01058
1	HOW DO PSYCHOMOTOR AND COGNITIVE PERFORMANCE REQUIREMENTS FOR LHX COMPARE WITH THOSE OF AIRCRAFT BEING REPLACED OR OTHER AIRCRAFT IN THE DOD INVENTORY?	IMPACT ON FEASIBILITY OF SINGLE PILOT OPERATION	ARTI RESULTS. ARMY/NASA CREW STATION SIMULATION STUDIES.	PM/HEL	RFP	01058
1	HOW DO PSYCHOMOTOR AND COGNITIVE PERFORMANCE REQUIREMENTS FOR LHX COMPARE WITH THOSE OF AIRCRAFT BEING REPLACED OR OTHER AIRCRAFT IN THE DOD INVENTORY?	IMPACT ON FEASIBILITY OF SINGLE PILOT OPERATION	ARTI RESULTS. ARMY/NASA CREW STATION SIMULATION STUDIES.	PM/HEL	RFP	01058

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
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	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED	ISSUE CODE
*	WHAT IS THE MOST COST EFFECTIVE AND TRAINING EFFECTIVE MIX OF PART-TASK, FULL MISSION SIMULATOR AND OPERATIONAL AIRCRAFT IN INITIAL ENTRY LHX PILOT TRAINING?	PILOT TRAINING. UNLESS COST EFFECTIVENESS AND TRAINING EFFECTIVENESS STUDIES ARE PERFORMED TO DETERMINE THE APPROPRIATE MIX OF TRAINING MEDIA AND METHODS, TRAINING OF PILOTS WILL SUFFER.	(UNKNOWN)	TRADOC	PUBLICATION OF CTEA	01007
1	(PILOT PERFORMANCE) IS THERE DEGRADATION OF PILOT PERFORMANCE OR ARE THERE LONG-TERM HEALTH IMPLICATIONS STEMMING FROM CURRENT LHX DESIGN?	HEALTH HAZARDS. UNCORRECTED HEALTH HAZARDS CAN BE COSTLY TO PILOTS HEALTH AND DETRIMENTAL TO UNIT EFFECTIVENESS.	(UNKNOWN)	USAARL	OT II	01011
*	WHAT IS THE NUMBER OF SKILLS AND WHAT SKILL LEVELS ARE REQUIRED FOR CURRENT LIGHT FLEET OPERATIONS? LHX SHOULD REDUCE THIS.	POTENTIAL IMPACT ON PERSONNEL SELECTION, TRAINING MOS DETERMINATION, UNIT MANNING AND FORCE STRUCTURE.	THE HARDMAN ANALYSIS SHOULD PROVIDE THE INFORMATION	TRADOC	PRIOR TO OT II	01018
*	HOW CAN THE USE OF NEW TECHNOLOGY SIMPLIFY AND REDUCE TRAINING REQUIRMENTS?	POTENTIAL FOR IMPROVED TRAINING IN LESS TIME AND LOWER COSTS	(UNKNOWN)	TRADOC	PUBLICATION OF CTEA	01020
*	HOW CAN THE USE OF NEW TECHNOLOGY SIMPLIFY AND REDUCE TRAINING REQUIRMENTS?	POTENTIAL FOR IMPROVED TRAINING IN LESS TIME AND LOWER COSTS	(UNKNOWN)	TRADOC	PUBLICATION OF CTEA	01020

PAGE

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MAINT=2
SUPT =3

	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED	ISSUE CODE
1	PROLONGED EXPOSURE TO WHOLE BODY VIBRATION MAY HAVE AN UNDESIRABLE IMPACT ON THE AIRCREW	EXCESSIVE VIBRATION LEVELS COULD DEGRADE CREW PERFORMANCE AND MISSION SUCCESS.	DESIGN LHX WITHIN LIMITS OF MIL-STD 1472C, PARA 5.8.9.1.1	USAARL	TT	01025
1	CURRENT FIRE EXTINGUISHING SYSTEMS OFTEN USE HALON 1301 WHICH CAN HAVE ADVERSE HEALTH EFFECTS ON PERSONNE.	HALON 1301 COULD HAVE AN IMPACT ON PERSONNEL WHEN USED IN CONFINED SPACES SUCH AS CREW STATIONS AND PASSENGER COMPARTMENTS	EVALUATE POTENTIAL FIRE EXTINGUISHING SYSTEMS TO ALLEVIATE HEALTH HAZARDS ASSOCIATED WITH HALON 1301	PM	TT	01026
	AS THE LHX ENTERS THE INVENTORY CURRENT TRAINING AIRCRAFT MAY BE REPLACED BY LHX. THE LHX TRAINING PROGRAM/SYSTEM/AIRCRAFT SHOULD BE ESTABLISHED TO INCLUDE IERW.	DESIGNATING THE LHX AS PRIMARY TRAINER FOR ALL IERW EARLIER IN THE PROGRAM MAY DECREASE LONG TERM TRAINING COSTS.	COMPLETE ONGOING ANALYSIS (CTEA) AND RESOLVE ISSUE PRIOR TO FSED.	TRADOC	PRIOR TO FSD	01050
1	WHAT ARE THE TRAINING REQUIREMENTS FOR PERSONNEL OF OTHER AIRCRAFT STATIONED WITH THE LHX?	WITHOUT ADEQUATE ATTENTION TO THE IMPACT OF LHX INTEGRATION INTO UNITS, UNIT EFFECTIVENESS MAY SUFFER (A)	CONTINUE ANALYSIS FROM TOTAL SYSTEM PERSPECTIVE TO ENSURE THAT UNNECESSARY REDUNDANCIES AND CRITICAL TRAINING VOIDS ARE AVOIDED.	TRADOC	PRIOR TO FIELDING	01057
2	NBC AND COLD WEATHER PROTECTIVE CLOTHING CAN HAVE AN ADVERSE IMPACT ON SOLDIER PERFORMANCE.	POTENTIAL REDUCTION IN SOLDIER PERFORMANCE AND MISSION SUCCESS.	ASSURE THAT THE LHX DESIGN IS COMPATIBLE WITH PROTECTIVE CLOTHING. PLACE HIGH PRIORITY ON NBC/COLD WEATHER EQUIPMENT DEVELOPMENT.	PM	OT II	M1003

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(LISTERN PRG)
IN CRITICALITY SCORE SEQUENCE WITHIN MANPRINT DOMAIN

DOMAIN
OPER =1
MAINT=2
SUPT =3

	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED	ISSUE CODE
2	NBC AND COLD WEATHER PROTECTIVE CLOTHING CAN HAVE AN ADVERSE IMPACT ON SOLDIER PERFORMANCE	POTENTIAL REDUCTION IN SOLDIER PERFORMANCE AND MISSION SUCCESS	ASSURE THAT THE LHX DESIGN IS COMPATIBLE WITH PROTECTIVE CLOTHING PLACE HIGH PRIORITY ON NBC/COLD WEATHER EQUIPMENT DEVELOPMENT.	PM	OT II	M1003
2	LASERS AND IR RADIATION CAN PRODUCE VISUAL DAMAGE DURING COMBAT AND TRAINING. RF AND MICROWAVE EXPOSURES ARE POTENTIAL HEALTH HAZARDS.	POTENTIAL AIR AND GROUND CREW CASUALTIES AND DEGRADED MISSION PERFORMANCE.	EQUIPMENT SHOULD COMPLY WITH MIL-STD 1425, AR40-46 AND AR40-583. LASERS SHOULD HAVE A SAFE MODE FOR USE DURING TRAINING AIR AND GROUND CREW TRAINING IN SAFE OPERATION AND MAINTENANCE.	PM	TT	M1005
2	WHAT SYSTEMS ARE AUTOMATED AND HOW SPECIFIC AUTOMATION ACCOMMODATES SINGLE CREW MEMBER OPERATION HAS NOT BEEN COMPLETELY ASSESSED. HF DESIGN STANDARDS DO NOT FULLY ADDRESS ISSUES AND TRADE-OFFS IN AUTOMATION AND COGNITIVE OVERLOAD.	IF MAN-MACHINE INTEGRATION WITH AUTOMATED SYSTEMS IS NOT FULLY DEVELOPED, SINGLE CREW MEMBER LHX MISSION ACCOMPLISHMENT AND SURVIVABILITY WILL BE GREATLY REDUCED.	ACCELERATE DEVELOPMENT OF CRITICAL INFORMATION PROCESSING TECHNOLOGIES. CONDUCT ANALYSIS, SIMULATION AND EVALUATIONS TO ASSESS CAPABILITIES. REVISE HF DESIGN STANDARDS. DEVELOP EFFECTIVE TRAINING.	PM	FSD	M1007
2	AN INTEGRATED APPROACH TO CREW STATION LIGHTING IS NEEDED. LIGHTING FOR MAINTENANCE AND FARP HAS NOT BEEN FULLY EVALUATED.	CREWSTATION, MAINTENANCE AND FARP LIGHTING HAVE A CRITICAL IMPACT ON THE AIRCREW'S ABILITY TO ACCOMPLISH THE COMBAT MISSION.	PERFORM CREWSTATION LIGHTING ANALYSIS THAT ADDRESSES THE UNIQUE ASPECT OF CREW STATION EQUIPMENT AND PROTECTIVE DEVICES. INCLUDE MAINTENANCE AND FARP ACTIVITIES TO INSURE A FULLY INTEGRATED SYSTEM FOR LHX.	PM	FSD	M1009
2	IS THE TRAINING PLAN ADEQUATE TO SUPPORT LHX FIELDING AT THE PROJECTED RATE?	MISMATCH BETWEEN AVAILABILITY OF AIRCRAFT AND AVAILABILITY OF TRAINED PERSONNEL CAN DELAY LHX DEPLOYMENT.	COMPLETE ONGOING ANALYSES (BOIP, ICTP, CONTRACTORS) AND RESOLVE ISSUE PRIOR TO FSD.	PM/TRADOC	PRIOR TO FSD	M1011

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(EASTERN PRC)
IN CRITICALITY SCORE SEQUENCE WITHIN MANPRINT DOMAIN

DOMAIN
OPER =1
MAINT=2
SUPT =3

	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED	ISSUE CODE
2	CAN ALL UNIT MAINTENANCE FUNCTIONS BE PERFORMED BY NO MORE THAN THREE MOS INCLUDING CREW CHIEF?	POTENTIAL DESIGN TRADE-OFFS IMPACT ON MOS DETERMINATION. POTENTIAL IMPACT ON TRAINING UNIT MANNING AND FORCE STRUCTURE.	MONITOR AIRCRAFT DESIGN. PERFORM TASK & SKILL ANALYSIS INCLUDE IN QQPRI.	PM/ILS	PRIOR TO FSD	M1002
2	CAN ALL UNIT MAINTENANCE FUNCTIONS BE PERFORMED BY NO MORE THAN THREE MOS INCLUDING CREW CHIEF?	POTENTIAL DESIGN TRADE-OFFS IMPACT ON MOS DETERMINATION. POTENTIAL IMPACT ON TRAINING UNIT MANNING AND FORCE STRUCTURE.	MONITOR AIRCRAFT DESIGN. PERFORM TASK & SKILL ANALYSIS. INCLUDE IN QQPRI.	PM/ILS	PRIOR TO FSD	M1002
2	STEADY STATE AND IMPULSE NOISE LEVELS OF THE LHX MAY DEGRADE AIR AND GROUND CREWS' PERFORMANCE AND MAY POSE HEALTH HAZARDS	DEGRADED CREW PERFORMANCE AND/OR INJURY COULD ADVERSLY IMPACT MISSION ACCOMPLISHMENT.	DESIGN LHX TO MEET APPROPRIATE NOISE LIMITS OF MIL-STD-1294, TB-MED-251 AND MIL-STD-1474. PROVIDE AIR AND GROUND CREWS WITH HEARING PROTECTION EQUAL TO OR BETTER THAN THE SPH-4 HELMET	PM	IT	M1004
2	FULL CAPABILITIES AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCE ACTIVITIES.	COMBAT EFFECTIVENESS OF LHX WILL BE HIGHLY DEPENDENT ON GROUND FACILITIES FOR MISSION PLANNING AND MAINTENANCE.	CONDUCT AN IN DEPTH ASSESSMENT OF THE AIRCREW AND MAINTAINER NEEDS AND ESTABLISH DETAILED REQUIREMENTS FOR MISSION PLANNING AND MAINTENANCE WORK STATION CAPABILITIES.	TRADOC	PRIOR TO OT II	M1006

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(INTERN PRT
IN PRIORITY ... BY DESIGN ACTION MANAGEMENT MAIN

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MAINT D
SUPT EQ

	ALTERNATIVE ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED	ISSUE CODE
2	FULL CAPABILITIES AND REQUIREMENTS AND HUMAN FACTORS AND TRAINING CONSIDERATIONS HAVE NOT BEEN DEFINED FOR THE COMPUTER BASED MISSION PLANNING AND MAINTENANCNE ACTIVITIES	COMBAT EFFECTIVENESS OF LHX WILL BE HIGHLY DEPENDENT ON GROUND FACILITIES FOR MISSION PLANNING AND MAINTENANCE	CONDUCT AN IN DEPTH ASSESSMENT OF THE AIRCREW AND MAINTAINER NEEDS AND ESTABLISH DETAILED REQUIREMENTS FOR MISSION PLANNING AND MAINTENANCE WORK STATION CAPABILITIES	TRADOC	PRIOR TO OT II	M1022
2	WHAT ARE THE UNIT TRAINING REQUIREMENTS FOR OPEPATORS AND MAINTAINERS IN TERMS OF INITIAL SKILLS, REQUALIFICAT ON AND TACTICAL TRAINING?	LESS THAN ADEQUATE TRAINING AT THE UNIT LEVEL WILL REDUCE COMBAT EFFECTIVENESS.	CONTINUE ONGOING ANALYSIS AND RESOLVE ISSUE PRIOR TO FSD	TRADOC	PRIOR TO FSD	M1010
2	PRODUCT IMPROVEMENT MUST BE FULLY INTEGRATED TO ASSURE IMPROVED SYSTEM PERFORMANCE	PILOT AND MAINTENANCE WORKLOAD MUST NOT BE INCREASED AT THE EXPENSE OF MISSION PERFORMANCE	ASSURE THAT THE KNOWN PREPLANNED PRODUCTION IMPROVEMENTS ARE INTEGRATED INTO THE LHX SYSTEM DESIGN.	PM	START OF P3I PROGRAM	M1012
2	WILL THE LHX DESIGN TAKE ADVANTAGE OF COMPUTER ASSISTED TRAINING EMBEDDED TRAINING) TECHNOLOGIES FOR INITIAL AND UNIT TRAINING?	ADVANCES IN TRAINING TECHNOLOGY MAY REDUCE INSTRUCTOR REEQUIREMENTS, IMPROVE TRAINING QUALITY CONTROL REDUCE INITIAL TRAINING TIME AND IMPROVE TRAINING IN UNITS.	COMPLETE ONGOING ANALYSES (CTEA, CONTRACTOR) AND RESOLVE ISSUE PRIOR TO FSD	PM	FSD	M1013

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(LISTERN PRG)
IN CRITICALITY SCORE SEQUENCE WITHIN MANPRINT DOMAIN

DOMAIN
OPER =1
MAINT=2
SUPT =3

	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED	ISSUE CODE
2	DOES THE LHX SYSTEM DESIGN ADEQUATELY CONSIDER HUMAN FACTORS IN MAINTENANCE (E G ACCESSIBILITY, PROTECTIVE CLOTHING COMPOSITE MATERIAL REPAIR, ETC)?	FAILURE TO DESIGN FOR EASE OF MAINTENANCE UNDER ADVERSE OPERATIONAL CONDITIONS AND ENVIRONMENTS CAN DEGRADE SYSTEM AVAILABILITY, INCREASE MAINTENANCE TRAINING TIME, AND INCREASE MENTAL CATEGORY REQUIREMENTS FOR SPECIFIC MOS'S	CONDUCT EARLY ANALYSIS TO RESOLVE ISSUE	PM	PRIOR TO FSD	M1017
2	DOES THE LHX SYSTEM DESIGN ADEQUATELY CONSIDER HUMAN FACTORS IN MAINTENANCE (E.G. ACCESSIBILITY, PROTECTIVE CLOTHING COMPOSITE MATERIAL REPAIR, ETC)?	FAILURE TO DESIGN FOR EASE OF MAINTENANCE UNDER ADVERSE OPERATIONAL CONDITIONS AND ENVIRONMENTS CAN DEGRADE SYSTEM AVAILABILITY, INCREASE MAINTENANCE TRAINING TIME, AND INCREASE MENTAL CATEGORY REQUIREMENTS FOR SPECIFIC MOS'S.	CONDUCT EARLY ANALYSIS TO RESOLVE ISSUE	PM	PRIOR TO FSD	M1017
2	DOES THE LHX SYSTEM DESIGN ADEQUATELY CONSIDER HUMAN FACTORS IN MAINTENANCE (E.G. ACCESSIBILITY, PROTECTIVE CLOTHING COMPOSITE MATERIAL REPAIR ETC)?	FAILURE TO DESIGN FOR EASE OF MAINTENANCE UNDER ADVERSE OPERATIONAL CONDITIONS AND ENVIRONMENTS CAN DEGRADE SYSTEM AVAILABILITY, INCREASE MAINTENANCE TRAINING TIME, AND INCREASE MENTAL CATEGORY REQUIREMENTS FOR SPECIFIC MOS'S.	CONDUCT EARLY ANALYSIS TO RESOLVE ISSUE.	PM	PRIOR TO FSD	M1017

DOMAIN
OPER =1
MAINT=2
SUPT =3

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(LISTSAM PRG)
IN ALPHABETICAL SCORE SEQUENCE WITHIN MANPRINT DOMAIN

ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED	ISSUE CODE
2 WHAT IMPACT DOES TWO LEVEL MAINTENANCE HAVE ON INSTITUTIONAL AND UNIT LEVEL MAINTENANCE TRAINING DURING LHX 'PHASE IN' PERIOD AND WHEN STEADY STATE CONDITIONS ARE REACHED?	TWO LEVEL MAINTENANCE MAY INCREASE UNIT TRAINING BURDEN DURING PHASE-IN. ADDITIONAL LHX REQUIREMENTS MAY INCREASE SELECTED MOS TRAINING.	COMPLETE ONGOING ANALYSES (CTEA, ICTP, TWO LEVEL MAINTENANCE) AND RESOLVE ISSUE PRIOR TO FSD.	PM/ILS	PRIOR TO PRODUCTION	M1015
2 WHAT IMPACT DOES TWO LEVEL MAINTENANCE HAVE ON INSTITUTIONAL AND UNIT LEVEL MAINTENANCE TRAINING DURING LHX 'PHASE IN' PERIOD AND WHEN STEADY STATE CONDITIONS ARE REACHED?	TWO LEVEL MAINTENANCE MAY INCREASE UNIT TRAINING BURDEN DURING PHASE-IN ADDITIONAL LHX REQUIREMENTS MAY INCREASE SELECTED MOS TRAINING	COMPLETE ONGOING ANALYSES (CTEA, ICTP, TWO LEVEL MAINTENANCE) AND RESOLVE ISSUE PRIOR TO FSD.	PM/ILS	PRIOR TO PRODUCTION	M1015
2 WILL THE FATIGUE AND STRESS FROM THE MAINTENANCE BURDEN OF SUSTAINED CONTINUOUS OPERATIONS ADVERSELY AFFECT MISSION ACCOMPLISHMENT?	FATIGUE AND STRESS CAN INCREASE ERROR RATES AND TIME TO ACCOMPLISH TASKS. EXCESSIVE FATIGUE AND STRESS MAY ADVERSELY AFFECT MISSION ACCOMPLISHME	COMPLETE ONGOING ANALYSES (E HARDMAN, LSA/LSAR, TWO LEVEL MAINTENANCE, CONTRACTOR TRAINING ANALYSIS.)	PM	OT II	M1016
2 ANALYSES OF MAINTENANCE TRAINING ARE COMPLICATED BY THE PROSPECT OF ALTERATIONS IN MAINTENANCE MOS'S 2-LEVEL MAINTENANCE AND HARDWARE INNOVATIONS.	MAINTENANCE TRAINING REQUIREMENTS CANNOT YET BE FIRMLY STATED.	CONTINUE ASSESSMENT BEYOND CONCEPT DEVELOPMENT UNTIL NEEDED INFORMATION IS AVAILABLE.	PM-ILS	PRIOR TO OT II	M1018

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(LISTERN PRG)
IN CRITICALITY SCORE SEQUENCE WITHIN MANPRINT DOMAIN

DOMAIN
OPER =1
MAINT=2
SUPT =3

	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED	ISSUE CODE
2	THE AMOUNT OF NON-MAINTENANCE TASKS PER INDIVIDUAL MAINTAINER MAY INCREASE AS THE MAINTENANCE POPULATION DECREASES.	UNDERESTIMATED MANPOWER REQUIREMENTS CAUSE INADEQUATE TRAINING SUPPORT STRUCTURE TO BE INITIATED AND CAN CREATE A SEVERAL YEAR LAG IN RECRUITING.	GIVE APPROPRIATE ATTENTION TO NON-MAINTENANCE TASKS IN STAFFING FOR MAINTENANCE IN UNITS.	PM-ILS	OT II	M1019
2	WHAT IS THE NUMBER OF SKILLS AND WHAT SKILL LEVELS ARE REQUIRED FOR CURRENT LIGHT FLEET OPERATIONS? LHX SHOULD REDUCE THIS.	POTENTIAL IMPACT ON PERSONNEL SELECTION, TRAINING MOS DETERMINATION, UNIT MANNING AND FORCE STRUCTURE.	THE HARDMAN ANALYSIS SHOULD PROVIDE THE INFORMATION.	TRADOC	PRIOR TO OT II	M1001
2	WHAT IS THE IMPACT OF METRIC MEASURE ON MAINTENANCNE AND MAINTENANCE TRAINING?	USE OF METRIC MEASURE COULD PROVE COSTLY AND DELAY THE REPAIR PROCESS ESPECIALLY IF LHX CONTAINS A MIX OF METRIC AND STANDARD SIZES.	CONDUCT PERFORMANCE ANALYSIS TO DETERMINE OVERALL SIGNIFICANCE OF USING METRIC MEASURE. PROVIDE APPROPRIATE TRAINING.	PM	OT II	M1008
2	WHAT IS THE IMPACT OF METRIC MEASURE ON MAINTENANCNE AND MAINTENANCE TRAINING?	USE OF METRIC MEASURE COULD PROVE COSTLY AND DELAY THE REPAIR PROCESS ESPECIALLY IF LHX CONTAINS A MIX OF METRIC AND STANDARD SIZES.	CONDUCT PERFORMANCE ANALYSIS TO DETERMINE OVERALL SIGNIFICANCE OF USING METRIC MEASURE. PROVIDE APPROPRIATE TRAINING.	PM	OT II	M1008
2	WHAT ARE THE TRAINING REQUIREMENTS FOR PERSONNEL OF OTHER AIRCRAFT STATIONED WITH THE LHX?	WITHOUT ADEQUATE ATTENTION TO THE IMPACT OF LHX INTEGRATION INTO UNITS, UNIT EFFECTIVENESS MAY SUFFER (A).	CONTINUE ANALYSIS FROM TOTAL SYSTEM PERSPECTIVE TO ENSURE THAT UNNECESSARY REDUNDANCIES AND CRITICAL TRAINING VOIDS ARE AVOIDED.	TRADOC	PRIOR TO FIELDING	M1024

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(LISTERN PRG)
IN CRITICALITY SCORE SEQUENCE WITHIN MANPRINT DOMAIN

DOMAIN
OPER =1
MAINT=2
SUPT =3

	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED	ISSUE CODE
3	REQUIRED TURN AROUND TIME IN FARP IS 15 MINUTES WITHOUT GHE. REARMING IS TO BE DONE WITH TWO SOLDIERS PER AIRCRAFT	LESS THAN ADEQUATE TRAINING AT THE UNIT LEVEL WILL REDUCE COMBAT EFFECTIVENESS	DESIGN LHX FUEL AND WEAPONS PLATFORM / INTERFACE TO ACHIEVE MISSION REQUIREMENTS. CONSIDER AMMUNITION PACKAGING ENHANCE.	LOG CEN	OT II	S1005
3	WILL THE LARGER LHX FLEET RESULT IN AN INCREASE IN THE TOTAL NUMBER OF PERSONNEL REQUIRED TO OPERATE AND ADMINISTER THE COMPLEX LHX TRAINING DEVICES?	POTENTIAL IMPACT ON FORCE STRUCTURE	INCLUDE IN HARDMAN ANALYSIS. INCLUDE IN OQPRI. LOOK FOR OFF-SETTING REDUCTIONS AS LHX DEVELOPMENT PROGRESSES.	TRADOC	PRIOR TO PRODUCTION	S1001
3	AN INTEGRATED APPROACH TO CREW STATION LIGHTING IS NEEDED LIGHTING FOR MAINTENANCE AND FARP HAS NOT BEEN FULLY EVALUATED	CREWSTATION, MAINTENANCE AND FARP LIGHTING HAVE A CRITICAL IMPACT ON THE AIRCREW'S ABILITY TO ACCOMPLISH THE COMBAT MISSION.	PERFORM CREWSTATION LIGHTING ANALYSIS THAT ADDRESSES THE UNIQUE ASPECT OF CREW STATION EQUIPMENT AND PROTECTIVE DEVICES. INCLUDE MAINTENANCE AND FARP ACTIVITIES TO INSURE A FULLY INTEGRATED SYSTEM FOR LHX.	PM	FSD	S1002
3	WHAT ARE THE UNIT TRAINING REQUIREMENTS FOR OPERATORS AND MAINTAINERS IN TERMS OF INITIAL SKILLS, REQUALIFICATION AND TACTICAL TRAINING?	LESS THAN ADEQUATE TRAINING AT THE UNIT LEVEL WILL REDUCE COMBAT EFFECTIVENESS.	CONTINUE ONGOING ANALYSIS AND RESOLVE ISSUE PRIOR TO FSD.	TRADOC	PRIOR TO FSD	S1003
3	IS THE TRAINING PLAN ADEQUATE TO SUPPORT LHX FIELDING AT THE PROJECTED RATE?	MISMATCH BETWEEN AVAILABILITY OF AIRCRAFT AND AVAILABILITY OF TRAINED PERSONNEL CAN DELAY LHX DEPLOYMENT.	COMPLETE ONGOING ANALYSES (BOIP, ICTP, CONTRACTORS) AND RESOLVE ISSUE PRIOR TO FSD.	PM/TRADOC	PRIOR TO FSD	S1004

LHX ISSUES DATA BASE LISTING OF MEMO FIELDS
(LISTERN PRG)
IN CRITICALITY SCORE SEQUENCE WITHIN MANPRINT DOMAIN

DOMAIN
OPER =1
MAINT=2
SUPT =3

	ALLEN DERIVED ISSUE STATEMENT	IMPACT	PROPOSED SOLUTION	RESPONSIBLE AGENCY	WHEN RESOLVED	ISSUE CODE
3	WILL THE FATIGUE AND STRESS FROM THE MAINTENANCE BURDEN OF SUSTAINED CONTINUOUS OPERATIONS ADVERSELY AFFECT MISSION ACCOMPLISHMENT?	FATIGUE AND STRESS CAN INCREASE ERROR RATES AND TIME TO ACCOMPLISH TASKS. EXCESSIVE FATIGUE AND STRESS MAY ADVERSELY AFFECT MISSION ACCOMPLISHMENT.	COMPLETE ONGOING ANALYSES (EG HARDMAN, LSA/LSAR, TWO LEVEL MAINTENANCE, CONTRACTOR TRAINING ANALYSIS) AND RESOLVE ISSUE PRIOR TO FSD.	PM	OT II	S1006
3	OPTIMAL PATIENT CARE NOT PROVIDED. NO OXYGEN, COOLING OR OVER PRESSURE PROVIDED FOR PATIENTS.	ENHANCED ENROUTE PATIENT CARE WILL RESULT IN A MORE STABLE PATIENT DELIVERED TO A MEDICAL TREATMENT FACILITY AND WILL SPEED RETURN TO DUTY.	2ND DRAFT RFP PROVIDES OXYGEN FOR PATIENTS.	PM	RFP	S1007
3	WHAT ARE THE TRAINING REQUIREMENTS OF OTHER AIRCRAFT (AVIATORS, CREWS, MAINTENANCE) STATIONED WITH THE LHX?	WITHOUT ADEQUATE ATTENTION TO THE IMPACT OF LHX INTEGRATION INTO UNITS, UNIT EFFECTIVENESS MAY SUFFER (A)	CONTINUE ANALYSIS FROM TOTAL SYSTEM PERSPECTIVE TO ENSURE THAT UNNECESS-ARY REDUNDANCIES AND CRITICAL TRAINING VOIDS ARE AVOIDED.	TRADOC	PRIOR TO FIELDING	S1008

Requirements Documents Data Base Listings by

Identification Code (IDNO) Sequence

REQUIREMENTS DOCUMENTS DATA BASE
(REQDOK FRM)

IDNO	TITLE OF DOCUMENT	AUTHOR	DOCUMENT LOCATION (ARI/ALLEN)	ORIGINATING ORGANIZATION	DATE OF DOCUMENT	STATUS	SEC. CLASS	DOC. TYPE	MEDIA
R1001	OPERATIONAL AND ORGANIZATIONAL (O&O) PLAN FOR THE LIGHT HELICOPTER FAMILY (LHX)	UNKNOWN	046 ARI LHX FILE FOLDER (ALLEN)	USAAVNC-DCD-LHX TSM	03/19/85	D	U	M	P
R1002	LETTER OF AGREEMENT (LOA) FOR THE LIGHT HELICOPTER FAMILY (LHX) FOR TRADOC ACN 69396 CARDS REFERENCE #0514A	CARL H MCNAIR, JR, MAJOR GENERAL, GS, DEPUTY CHIEF OF STAFF FOR COMBAT DEVELOPMENTS AND ROBERT L. MOORE, LIEUTENANT GENERAL, USA DEPUTY COMMANDING GENERAL FOR RESEARCH, DEVELOPMENT AND ACQUISITION	045 ARI LHX FILE FOLDER (ALLEN)	HEADQUARTERS TRADOC ATCD FT. MONROE, VA	03/05/85	F	U	M	P
R1003	LIGHT HELICOPTER FAMILY (LHX) DRAFT REQUIRED OPERATIONAL CAPABILITY (ROC) ACN: 69396	UNKNOWN	019 ARI LHX FILE FOLDER (ALLEN)	HEADQUARTERS, USA AVIATION CENTER, FORT RUCKER, AL	11/30/85	D	U/S	M	P
R1004	DRAFT REQUEST FOR PROPOSAL (RFP)DAAJ09-86-R-A004, LHX AIRCRAFT SYSTEM	AMCPM-LHX-T, MR. WAYNE MORTON	012 ARI LHX FILE FOLDER (ALLEN)	HEADQUARTERS AVIATION SYSTEMS COMMAND, 4300 GOODFELLOW BLVD. ST. LOUIS, MO AMSAV-PS	12/30/85	D	U/S	M	P
R1005	TENTATIVE BASIS OF ISSUE PLANS (TBOIP) AND TENTATIVE QUALITATIVE AND QUANTITATIVE PERSONNEL REQUIREMENTS INFORMATION (TQQPRI) FOR THE HELICOPTER, SCOUT/ATTACK (LHX), LIN Z33524, BOIP 85-0333-T AND THE HELICOPTER UTILITY (LHX), LIN Z33556,BOIP 85-0334	MR. DISTEFANO	003 ARI LHX FILE FOLDER (ALLEN)	HEADQUARTERS TRAINING AND DOCTRINE COMMAND	12/06/85	D	U	DF	P
R1006	TRAINING DEVICE REQUIREMENTS (TDR)				02/28/86				
R1007	GUIDANCE LETTER, LIGHT HELICOPTER FAMILY (LHX) MILESTONE I/II, DECISION REVIEW BY ASARC	ROB ROY MCGREGOR, DIRECTOR, SYSTEMS REVIEW AND ANALYSIS OFFICE	030 ARI LHX FILE FOLDER (ALLEN)	US ARMY OFFICE OF DEPUTY CHIEF OF STAFF FOR RESEARCH DEVELOPMENT AND ACQUISION, WASHINGTON, D.C. (DAMA-RA)	11/21/85	F	U	L	P
R1010	LIGHT HELICOPTER SYSTEM FULL SCALE DEVELOPMENT REQUEST FOR PROPOSAL, DAA109-86-A0004,LHX	AMCPM-LHX	012 ARI FILE FOLDER (ALLEN)	HQ, AVIATION SYSTEMS CMD, 4300 GOODFELLOW BLVD. ST LOUIS MO. AMCPM-LHX	11/24/86	2D	U	M	P

Analysis Documents Data Base Listings by

Identification Code (IDNO) Sequence

ANALYSIS DOCUMENTS DATA BASE
(ANLDOC FRM)

DOND	TITLE OF DOCUMENT	AUTHOR	DOCUMENT LOCATION (ARI/ALLEN)	ORIGINATING ORGANIZATION	DATE OF DOCUMENT	MEDIA	STATUS	SEC CLASS	DOC TYPE
A1001	LHX-PROFILES OF COEA CONFIGURATION	UNKNOWN	002 ARI LHX FILE FOLDER (ALLEN)	UNKNOWN	11/08/85	P	D	U	T
A1002	LIGHT HELICOPTER FAMILY TRADE-OFF ANALYSIS APPENDIX N VOLUME IV ACN:69396	UNKNOWN	027 ARI LHX FILE FOLDER (ALLEN)	TRADOC-AMC	05/15/85	P	D	U	R
A1003	LIGHT HELICOPTER FAMILY TRADE-OFF ANALYSIS APPENDIX R VOLUME VII ACN: 69396 HUMAN FACTORS/MAN MACHINE INTERFACE	HICKMAN, ARMSTRONG, CLEEK	028A &028B ARI LHX FILE FOLDER (ALLEN)	TRADOC-AMC	05/15/85	P	D	U	R
A1004	LIGHT HELICOPTER FAMILY TRADE-OFF ANALYSIS APPENDIX U VOLUME IX ACN: 69396 TRAINING	UNKNOWN	029 ARI LHX FILE FOLDER (ALLEN)	UNKNOWN	05/15/85	P	D	U	R
A1005	LIGHT HELICOPTER FAMILY TRADE-OFF ANALYSIS APPENDIX K ACN: 69396 MODELS	UNKNOWN	021 ARI LHX FILE FOLDER (ALLEN)	UNKNOWN	05/15/85	P	D	U	R
A1006	LIGHT HELICOPTER FAMILY TRADE-OFF ANALYSIS APPENDIX V VOLUME X ACN: 69396 SAFETY	UNKNOWN	032 ARI LHX FILE FOLDER (ALLEN)	UNKNOWN	05/15/85	P	D	U	R
A1007	LIGHT HELICOPTER FAMILY TRADE-OFF ANALYSIS APPENDIX W VOLUME X ACN: 69396 COST ANALYSIS	UNKNOWN	032 ARI LHX FILE FOLDER (ALLEN)	UNKNOWN	05/15/85	P	D	U	R
A1008	LIGHT HELICOPTER FAMILY TRADE-OFF ANALYSIS APPENDIX X VOLUME X ACN: 69396 COMMONALITY	UNKNOWN	032 ARI LHX FILE FOLDER (ALLEN)	UNKNOWN	05/15/85	P	D	U	R
A1009	LIGHT HELICOPTER FAMILY TRADE-OFF ANALYSIS APPENDIX Z VOLUME X ACN: 69396 DOWNWASH	UNKNOWN	032 ARI LHX FILE FOLDER (ALLEN)	UNKNOWN	05/15/85	P	D	U	R
A1010	LIGHT HELICOPTER FAMILY TRADE-OFF ANALYSIS APPENDIX S VOLUME VIII ACN: 69396 FORCE STRUCTURE	UNKNOWN	031 ARI LHX FILE FOLDER (ALLEN)	UNKNOWN	05/15/85	P	D	U	R
A1011	LIGHT HELICOPTER FAMILY TRADE-OFF ANALYSIS APPENDIX T VOLUME VIII ACN: 69396 RELIABILITY, AVAILABILITY, AND MAINTAINABILITY/LOGISTICS (RAM/LOG) ANALYSIS	UNKNOWN	031 ARI LHX FILE FOLDER (ALLEN)	UNKNOWN	05/15/85	P	D	U	R
A1012	LHX BIOMEDICAL INPUT TO TRADE-OFF ANALYSIS	CPT DOUGLAS E. LANDON, PH.D.	043 ARI LHX FILE FOLDER (ALLEN)	US ARMY AEROMEDICAL RESEARCH LABORATORY, US ARMY MEDICAL R&D COMMAND	01/01/85	P	F	U	R

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IDNO	TITLE OF DOCUMENT	AUTHOR	DOCUMENT LOCATION (ARI/ALLEN)	ORIGINATING ORGANIZATION	DATE OF DOCUMENT	MEDIA	STATUS	SEC CLASS	DOC TYPE
A1013	LHX TRAINING REQUIREMENTS ANALYSIS	MAJ MICHAEL POUMADE, CPT BILL ZINK, DR. JACK H MCCRACKEN	044 ARI LHX FILE FOLDER (ALLEN)	DIRECTORATE OF TRAINING AND DOCTRINE, NEW SYSTEMS TRAINING AND SIMULATOR ACQUISITION DIVISION, AVIATION SYSTEMS TRAINING RESEARCH BRANCH	01/01/85	P	F	U	B
A1014	RELIABILITY, AVAILABLITY AND MAINTAINABILITY (RAM) RATIONALE REPORT FOR THE LHX PROGRAM...EXECUTIVE SUMMARY.	UNKNOWN	047 ARI LHX FILE FOLDER (ALLEN)	AVNC, AVSCOM, AMSAA, OTEA, AALS	08/23/85	P	F	U	R
A1015	TASK 201: USE STUDY LHX AIRFRAME	UNKNOWN	048 ARI LHX FILE FOLDER (ALLEN)	UNKNOWN	01/01/85	P	F	U	R
A1016	THE INTEGRATED COCKPIT AND THE HH-60D HELICOPTER	CECIL S. RICHARDSON	051 ARI LHX FILE FOLDER (ALLEN)	IBM FEDERAL SYSTEMS DIVISION	/ /	P	F	U	P
A1017	EMPIRICAL WORKLOAD AND COMMUNICATIONS ANALYSIS OF SCOUT HELICOPTER EXERCISES	MARGARET T. SHAFFER	057 ARI LHX FILE FOLDER (ALLEN)	PARADIGM, INC	04/30/85	P	F	U	R
A1018	TARGET AUDIENCE DESCRIPTION (POOR COPY OF REPORT SHOWING ASVAB SCORES BY MOS, PHYSICAL CATEGORY, APTITUED AREA SCORE, PERSONAL DATA MENTAL CATEGORY)	UNKNOWN	013 ARI FILE FOLDER (ALLEN)	UNKNOWN	/ /	P	F	UNCL	REPT
A1019	TRIP REPORT ON VISIT TO THE AVIATION LOGISTIC SCHOOL (ALS), FT EUSTIS, VIRGINIA, ON 21-22 NOV 85 (2-LEVEL MAINT DEFINITION)	LINDSEY HAGGAR, LOGISTICS MANAGEMENT SPECIALIST	017 ARI FILE FOLDER (ALLEN)	AMCPM-LHX-L	03/12/85	P	F	UNCL	TR
A1020	PROJECTED ACCIDENT COSTS FOR THE LHX AIRCRAFT, TECHNICAL REPORT TR 83-8	MAJ GEORGE J. NESPERENY AND JAMES E. HICKS, PHD	040 ARI FILE FOLDER (ALLEN)	US ARMY SAFETY CENTER, FT RUCKER, AL	/ /	P	F	UNCL	TR
A1021	LHX - LIGHT HELICOPTER FAMILY - EXPERIMENTAL (BRIEFING SLIDES)	MAJ GEORGE J. NESPERENY AND JAMES E. HICKS, PHD	040 ARI FILE FOLDER (ALLEN)	US ARMY SAFETY CENTER, FT RUCKER, AL	/ /	P	F	UNCL	BREF
A1022	PROJECTED ACCIDENT COSTS FOR THE LHX AIRCRAFT -- INFORMATION MEMORANDUM	LT. GEN ROBERT M. ELTON, DCSPER	040 ARI FILE FOLDER (ALLEN)	PESC-SE	11/23/84	P	F	UNCL	MEMO
A1023	PROJECTED ACCIDENT COSTS FOR THE LHX AIRCRAFT	JAMES R. AMBROSE, UNDER SECRETARY OF THE ARMY	040 ARI FILE FOLDER (ALLEN)	OFFICE OF THE UNDER SECRETARY OF THE ARMY	12/21/84	P	F	UNCL	MEMO
A1024	ARMY FAMILY OF LIGHT ROTORCRAFT (LHX) CONCEPT FORMULTAION	G.T.SINGLEY III, DIRECTORATE FOR ADVANCED SYSTEMS, ST. LOUIS MO. AVRADCOM	052 ARI FILE FOLDER (ALLEN)	AIAA AIRCRAFT DESIGN, SYSTEMS AND TECHNOLOGY MEETING	10/19/83	P	F	UNCL	PAPR
A1025	LHX BASELINE COMPARISON SYSTEM TILTROTOR UTILITY (HARDMAN DATA)	UNKNOWN	053 ARI FILE FOLDER (ALLEN)	UNKNOWN	/ /	P	F	UNCL	TABL

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IDNO	TITLE OF DOCUMENT	AUTHOR	DOCUMENT LOCATION (ARI/ALLEN)	ORIGINATING ORGANIZATION	DATE OF DOCUMENT	MEDIA	STATUS	SEC CLASS	DOC TYPE
A1026	LHX BASELINE COMPARISON SYSTEM HELICOPTER SCAT (HARDMAN DATA)	UNKNOWN	053 ARI FILE FOLDER (ALLEN)	UNKNOWN	/ /	P	F	UNCL	TABL
A1027	LHX BASELINE COMPARISON SYSTEM TILTROTOR SCAT (HARDMAN DATA)	UNKNOWN	053 ARI FILE FOLDER (ALLEN)	UNKNOWN	/ /	P	F	UNCL	TABL
A1028	LHX PROPOSED TILTROTOR SCAT (HARDMAN DATA)	UNKNOWN	053 ARI FILE FOLDER (ALLEN)	UNKNOWN	/ /	P	F	UNCL	TABL
A1029	LHX PROPOSED TILTROTOR UTILITY (HARDMAN DATA)	UNKNOWN	053 ARI FILE FOLDER (ALLEN)	UNKNOWN	/ /	P	F	UNCL	TABL
A1030	LHX BASELINE COMPARISON SYSTEM HELICOPTER UTILITY (HARDMAN DATA)	UNKNOWN	053 ARI FILE FOLDER (ALLEN)	UNKNOWN	/ /	P	F	UNCL	TABL
A1031	LHX PROPOSED HELICOPTER SCAT (HARDMAN DATA)	UNKNOWN	053 ARI FILE FOLDER (ALLEN)	UNKNOWN	/ /	P	F	UNCL	TABL
A1032	LHX PROPOSED HELICOPTER UTILITY (HARDMAN DATA)	UNKNOWN	053 ARI FILE FOLDER (ALLEN)	UNKNOWN	/ /	P	F	UNCL	TABL
A1033	LHX DATA FACTORS	UNKNOWN	053 ARI FILE FOLDER (ALLEN)	DYNAMICS RESEARCH CORPORATION	/ /	P	F	UNCL	UNKN
A1034	LHX HELICOPTER EXPERIMENTAL (LHX) (TABLES OF MOSs FOR AVUM/AVIM PER CONFIGURATION AGAINST EQUIPMENT NAME)	UNKNOWN	053 ARI FILE FOLDER (ALLEN)	UNKNOWN	06/02/85	P	F	UNCL	TABL
A1035	COURSE MODULE REPORT (BCS-68B)	UNKNOWN	053 ARI FILE FOLDER (ALLEN)	UNKNOWN	05/31/85	P	F	UNCL	TABL
A1036	LHX DESIGN DIFFERENCE WORK SHEET HELICOPTER UTILITY (TABLES SHOWING DIFFERENCE BETWEEN BCS AND PROPOSED DESIGN)	UNKNOWN	053 ARI FILE FOLDER (ALLEN)	UNKNOWN	/ /	P	F	UNCL	TABL
A1037	ADVANCED HELICOPTER BCS TRAINING DATA SOURCE INDEX (TABLES SHOWING TRAINING COURSES OFFERRED FOR EQUIPMENT CITED.	UNKNOWN	053 ARI FILE FOLDER (ALLEN)	UNKNOWN	/ /	P	F	UNCL	TABL
A1038	DIVISION MANPOWER REQUIREMENTS TYPE DIVISION: INFANTRY DIVISION (LT)(AVIM AND AVUM PROJECTED NEEDS BY MOS FOR SCAT AND UTILITY)	UNKNOWN	053 ARI FILE FOLDER (ALLEN)	UNKNOWN	/ /	P	F	UNCL	TABL
A1039	LHX SCENARIO REVISION II.	UNKNOWN	053 ARI FILE FOLDER (ALLEN)	UNKNOWN	11/30/84	P	F	UNCL	REPT

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A1040	LETTER SUBJECT MODIFICATION OF TASK ORDER 1 (LHX)	JAMES F DWYER, CONTRACTS SUPERVISOR	053 ARI FILE FOLDER (ALLEN)	DYNAMIC RESEARCH CORPORATION	05/29/85	P	F	UNCL	LETR
A1041	LETTER SUBJECT LETTER OF TRANSMITTAL FOR TASK ORDFER NUMBER ONE (LHX) MOD FICATION FIVE UNDER CONTRACT D'ABT60-84-C-0077	FREDERICK B. BYARD, LTC. GS DIRECTOR, MID	053 ARI FILE FOLDER (ALLEN)	US ARMY SOLDIER SUPPORT CENTER, NATIONAL CAPITAL REGION,	05/17/85	P	F	UNCL	LETR
A1042	MEMORANDUM FOR THE RECORD IPR #2 FOR HARDMAN APPLICATION TO THE LIGHT HELICOPTER EXPERIMENTAL (LHX) -- TASK ORDFER NUMBER ONE UNDER DABT60-84-C-0077	UNKNOWN	053 ARI FILE FOLDER (ALLEN)	UNKNOWN	06/18/85	P	F	UNCL	MEMO
A1043	LHX IPR-2 BRIEFING AGENDA (AND HANDOUT MATERIALS)	UNKNOWN	053 ARI FILE FOLDER (ALLEN)	DYNAMICS RESEARCH CORPORATION	06/04/85	P	F	UNCL	BREF
A1044	AIR ASSAULT DIVISION MANPOWER SUMMARY	UNKNOWN	053 ARI FILE FOLDER (ALLEN)	DYNAMICS RESEARCH CORPORATION	06/04/85	P	F	UNCL	TABL
A1045	LHX ANALYSIS ASSUMPTIONS	UNKNOWN	054 ARI FILE FOLDER (ALLEN)	UNKNOWN	/ /	P	F	UNCL	PAPR
A1046	ADVANCED HELICOPTER TRAINING DATA SOURCE INDEX	UNKNOWN	054 ARI FILE FOLDER (ALLEN)	UNKNOWN	01/01/80	P	F	UNCL	TABL
A1047	LHX BASELINE COMPARISON SYSTEM (BCS) HELICOPTER UTILITY	UNKNOWN	054 ARI FILE FOLDER (ALLEN)	UNKNOWN	/ /	P	F	UNCL	TABL
A1048	LHX BASELINE COMPARISON SYSTEM (BCS) HELICOPTER SCAT	UNKNOWN	054 ARI FILE FOLDER (ALLEN)	UNKNOWN	/ /	P	F	UNCL	TABL
A1049	LHX BASELINE COMPARISON SYSTEM (BCS) TILTROTOR UTILITY	UNKNOWN	054 ARI FILE FOLDER (ALLEN)	UNKNOWN	/ /	P	F	UNCL	TABL
A1050	LHX BASELINE COMPARISON SYSTEM (BCS) TILTROTOR SCAT	UNKNOWN	054 ARI FILE FOLDER (ALLEN)	UNKNOWN	/ /	P	F	UNCL	TABL
A1051	LHX PROPOSED HELICOPTER SCAT	UNKNOWN	054 ARI FILE FOLDER (ALLEN)	UNKNOWN	/ /	P	F	UNCL	TABL
A1052	LHX PROPOSED HELICOPTER UTILITY	UNKNOWN	054 ARI FILE FOLDER (ALLEN)	UNKNOWN	/ /	P	F	UNCL	TABL
A1053	LHX PROPOSED TILTRO OR UTILITY	UNKNOWN	054 ARI FILE FOLDER (ALLEN)	UNKNOWN	/ /	P	F	UNCL	TABL
A1054	LHX PROPOSED TILTROTOR SCAT	UNKNOWN	054 ARI FILE FOLDER (ALLEN)	UNKNOWN	/ /	P	F	UNCL	TABL
A1055	LIGHT HELICOPTER EXPERIMENTAL (LHX) (TABLES SHOWING AVIM,AVUM MOSs AGAINST EQUIPMENT NAME)	UNKNOWN	054 ARI FILE FOLDER (ALLEN)	UNKNOWN	07/31/85	P	F	UNCL	TABL
A1056	MEMORANDUM FOR THE RECORFD IN PROCESS REVIEW #3 FOR HARDMAN APPLICATION TO THE LIGHT HELICOPTER EXPERIMENTAL (LHX) -- TASK ORDER NUMBER ONE UNDER DABT60-84-C-0077.	BERNARD G. SCHUSTER, RESEARCH PSYCHOLOGIST, COR	054 ARI FILE FOLDER (ALLEN)	ATZI-NMS	08/13/85	P	F	UNCL	MEMO

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A1057	AGENDA FOR IN PROCESS REVIEW #3 FOR HARDMAN APPLICATION TO THE LIGHT HELICOPTER EXPERIMENTAL (LHX) -- TASK ORDER NUMBER ONE UNDER DABT60-84-C-0077	UNKNOWN	054 ARI FILE FOLDER (ALLEN)	DYNAMICS RESEARCH CORPORATION	08/06/85	P	F	UNCL	BREF
A1058	MEMORANDUM: HARDMAN #3 AD HOC BRIEFING	BERNARD G. SCHUSTER,RESEARCH PHSYCHOLOGIST, COR	055 ARI FILE FOLDER (ALLEN)	ATZI-NMS	12/06/85	P	F	UNCL	MEMO
A1059	MEMORANDUM: IN PROCESS REVIEW #4 FOR HARDMAN APPLICATION TO LHX	BERNARD G. SCHUSTER,RESEARCH PHSYCHOLOGIST, COR	055 ARI FILE FOLDER (ALLEN)	ATZI-NMS	11/01/85	P	F	UNCL	MEMO
A1060	MEMORANDUM: IN PROCESS REVIEW #5 FOR HARDMAN APPLICATION TO LHX	BERNARD G. SCHUSTER,RESEARCH PHSYCHOLOGIST, COR	056 ARI FILE FOLDER (ALLEN)	ATZI-NMS	01/10/86	P	F	UNCL	MEMO
A1061	MEMORANDUM: INSPECTION VISIT TO DRC FOR TASK ORDER ONE (LHX)	BERNARD G. SCHUSTER,RESEARCH PHSYCHOLOGIST, COR	056 ARI FILE FOLDER (ALLEN)	ATZI-NMS	01/10/86	P	F	UNCL	MEMO
A1062	LETTER OF TRANSMITTAL, TASK ORDER 6 UNDER DABT60-84-C-0077	FREDERICK B. BYARD, LTC, GS DIRECTOR, MID	056 ARI FILE FOLDER (ALLEN)	ATZI-NMS	01/13/86	P	F	UNCL	LTTR
A1063	AGENDA FOR LHX IPR 5 BRIEFING	UNKNOWN	056 ARI FILE FOLDER (ALLEN)	DYNAMICS RESEARCH CORPORATION	12/11/85	P	F	UNCL	BREF
A1064	LHX STANDARDS OF GRADE	UNKNOWN	056 ARI FILE FOLDER (ALLEN)	DYNAMICS RESEARCH CORPORATION	12/11/85	P	F	UNCL	BREF
A1065	LHX BASELINE COMPARISON SYSTEM (BCS) HELICOPTER UTILITY	UNKNOWN	056 ARI FILE FOLDER (ALLEN)	UNKNOWN	12/12/85	P	F	UNCL	TABL
A1066	LHX BASELINE COMPARISON SYSTEM (BCS) HELICOPTER SCAT	UNKNOWN	056 ARI FILE FOLDER (ALLEN)	UNKNOWN	12/12/85	P	F	UNCL	TABL
A1067	LHX BASELINE COMPARISON SYSTEM (BCS) TILTROTOR SCAT	UNKNOWN	056 ARI FILE FOLDER (ALLEN)	UNKNOWN	12/12/85	P	F	UNCL	TABL
A1068	LHX BASELINE COMPARISON SYSTEM (BCS) TILTROTOR UTILITY	UNKNOWN	056 ARI FILE FOLDER (ALLEN)	UNKNOWN	12/12/85	P	F	UNCL	TABL
A1069	LHX BASELINE COMPARISON SYSTEM (BCS) TILTROTOR UTILITY	UNKNOWN	056 ARI FILE FOLDER (ALLEN)	UNKNOWN	12/12/85	P	F	UNCL	TABL
A1070	LHX PROPOSED TILTROTOR UTILITY	UNKNOWN	056 ARI FILE FOLDER (ALLEN)	UNKNOWN	12/12/85	P	F	UNCL	TABL
A1071	AFHRL-TR-84-50 TRAINING EMPHASIS TASK FACTOR DATA: METHODS OF ANALYSIS	HANS P. JANSEN	063 ARI FILE FOLDER (ALLEN)	MANPOWER AND PERSONNEL DIVISION, BROOKS AFB, TX 78235-5601	/ /	P	F	UNCL	TR
A1072	AFHRL-TR-84-58 FLIGHT SIMULATOR: EFFECTS OF VISUAL DISPLAY FIELD OF VIEW ON A-10 AIRCRAFT CLOSE AIR SUPPORT PERFORMANCE	RONALD G. HUGHES, LARRY BROWN, CAPT, USAF	064 ARI FILE FOLDER (ALLEN)	OPERATIONS TRAINING DIVISION, WILLIAMS AFB, AZ 85240-6457	/ /	P	F	UNCL	TR

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A1073	AFHRL-TR 84-65 ADVANCED SIMULATOR FOR PILOT TRAINING AND HELMET-MOUNTED VISUAL DISPLAY CONFIGURATION COMPARISONS	ROBERT A. WOODRUFF, DAVID C. HUBBARD, ALEX SHAW	065 ARI FILE FOLDER (ALLEN)	OPERATIONS TRAINING DIVISION, WILLIAMS AFB, AZ 85240-6457	/ /	P	F	UNCL	TR
A1074	HUMAN FACTORS ENGINEERING ANALYSIS (HFEA) FOR THE LIGHT HELICOPTER FAMILY (LHX) PR	JOHN D. WEISZ, DIRECTOR	061 ARI FILE FOLDER (ALLEN)	U.S. ARMY LABORATORY COMMAND HUMAN ENGINEERING LABORATORY, ABERDEEN PROVING GROUND, MD 21005-5001	01/31/86	P	D	FOUO	R
A1075	POTENTIAL HEALTH HAZARD ISSUES FOR THE LIGHT HELICOPTER EXPERIMENTAL(LHX) INITIAL HEALTH HAZARD ASSESSMENT	SCOTT WELLS, DOUGLAS LANDON, BARCLAY P. BUTLER, CLARENCE E. RASH, WILLIAM R. NELSON, J.L. HALEY, JR.	062 ARI FILE FOLDER (ALLEN)	BIOMEDICAL APPLICATIONS RESEARCH DIVISION, U.S. ARMY AEROMEDICAL RESEARCH LABORATORY, FORT RUCKER, AL. 36362-5000	/ /	P	F	U	R
A1076	"LHX TWO LEVEL MAINTENANCE IMPACT ON MAINTAINER TRAINING"	UNKNOWN	068 ARI FILE FOLDER (ALLEN)	UNKNOWN	/ /	P		U	UNKN
A1077	HUMAN FACTORS ENGINEERING ANALYSIS (HFEA) FOR THE LIGHT HELICOPTER FAMILY (LHX)	RICHARD N. ARMSTRONG, (HEL)	061A ARI LHX FOLDER (ALLEN)	US ARMY HUMAN ENGINEERING LABORATORY	06/11/86	P	D	FOUO	HFEA
A1078	LHX HARDMAN IPR 6 BRIEFING		056A ARI LHX FILE FOLDER (ALLEN)		04/24/86	P	-	U	BREF
A1079	ARMY AVIATION MISSION AREA ANALYSIS (A/A MAA), SECTION IV CONCLUSIONS	UNK	(ALLEN)		/ /	P	F	U	MAA
A1080	INTERIM REPORT ON DEVELOPING MANPRINT ISSUES		(ALLEN)	ALLEN CORPORATION OF AMERICA	07/10/86	P	F	U	RPT
A1081	FINAL REPORT TO THE AD HOC SUBGROUP ON THE ARMY'S LHX PROGRAM	DR. WESLEY L. HARRIS, ET. AL.	ALLEN (LHX MANPRINT ISSUES FILE)	ARMY SCIENCE BOARD	12/01/84	P	F	U	RPT
A1082	EXTENDED APPLICATION OF HARDMAN TO THE LIGHT FAMILY OF HELICOPTERS (LHX) IN-PROCESS REVIEW 7-8 OCT. 86		056A ARI LHX FILE FOLDER (ALLEN)	DYNAMICS RESEARCH CORP.	10/07/86	P		U	BREF
A1083	LHX HUMAN FACTORS ENGINEERING ANALYSIS (HFEA)	RICHARD N. ARMSTRONG, HEL FLD. OFF, FORT RUCKER, AL	061B ARI LHX FILE FOLDER (ALLEN)	US ARMY LABORATORY COMMAND, HUMAN ENGINEERING LABORATORY, ABERDEEN PROVING GROUND, MD	09/23/86	P	D	FOUO	RPT

Plans and Programs Documents Data Base Listings by

Identification Code (IDNO) Sequence

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IDNO	TITLE OF DOCUMENT	AUTHOR	DOCUMENT LOCATION (ARI/ALLEN)	ORIGINATING ORGANIZATION	DATE OF DOCUMENT	MEDIA	STATUS	SEC. CLASS	DOC TYPE
P1001	VIRTUAL COCKPIT CONCEPTS FOR THE LHX	DR. THOMAS A FURNESS	042 ARI LHX FILE FOLDER (ALLEN)	AIR FORCE AEROSPACE MEDICAL RESEARCH LABORATORY	06/30/85	P	F	U	B
P1002	ISSUES FOR A TRADE-OFF ANALYSIS OF CONVENTIONAL VERSUS ADVANCED CONTROLLERS FOR THE LHX	EDWIN W. AIKEN	042 ARI LHX FILE FOLDER (ALLEN)	AEROMECHANICS LABORATORY U.S. ARMY RESEARCH AND TECHNOLOGY LABORATORIES (AVSCOM)	06/30/85	P	F	U	B
P1004	LHX TEST AND EVALUATION MASTER PLAN	XMCO, INC	001 ARI LHX FILE FOLDER (ALLEN)	U.S. ARMY AVIATION COMMAND	11/08/85	P	F	U	R
P1005	NEW EQUIPMENT TRAINING PLAN (NETP) UTILITY	UNKNOWN	004 ARI LHX FILE FOLDER (ALLEN)	MATERIEL DEVELOPER AMC/AVSCOM/PM AMCPM-LHX	09/18/85	P	D	U	P
P1006	NEW EQUIPMENT TRAINING PLAN (NETP) SCAT	UNKNOWN	005 ARI LHX FILE FOLDER (ALLEN)	MATERIEL DEVELOPER AMC/AVSCOM/PM AMCPM-LHX	05/31/85	P	D	U	P
P1007	COMBAT CREW COMPLEMENT PROGRAM (C3Po) SPECIAL TASK FORCE INFORMATIONPACKAGE: STUDY PLAN, DRAFT PROPOSAL FROM CAE FOR FACILITY, DRAFT PROPOSAL FROM FSI FOR GOVERNMENT COMPOSITE MISSION SCENARIO	UNKNOWN	009 ARI LHX FILE FOLDER (ALLEN)	AEROFLIGHTDYNAMICS DIRECTORATE C3Po OFFICE	08/15/85	P	D	U	P
P1008	LHX INTEGRATED LOGISTICS SUPPORT PLAN (ILSP)	ROBERT D. HUBBARD	011 ARI LHX FILE FOLDER (ALLEN)	AMCPM-LHX-T	10/28/85	P	D	U	P
P1009	ACQUISITION PLAN NUMBER 2	RONALD K. ANDRESON	050 ARI LHX FILE FOLDER (ALLEN)	AMCPM-LHX	03/20/85	P	D	U	P
P1010	INDIVIDUAL AND COLLECTIVE TRAINING PLAN FOR LIGHT HELICOPTER FAMILY PROGRAM	XMCO, INC.	016 ARI LHX FILE FOLDER (ALLEN)	U.S. ARMY AVIATION COMMAND AMSAV-PSL	12/01/85	P	D	U	R
P1011	TRADE-OFF DETERMINATION (TOD)			MATERIEL DEVELOPER	/ /	P	F	U	M
P1012	BEST TECHNICAL APPROACH (BTA)		067 A&B ARI LHX FILES FOLDER (ALLEN)		08/01/85				
P1013	TENTATIVE MILITARY OCCUPATIONAL SPECIALTY (MOS) DECISION PAPER				03/31/86				
P1014	OUTLINE INDIVIDUAL AND COLLECTIVE TRAINING PLAN (OICTP)				02/15/86				
P1015	STANDARDIZATION PLAN (STDP)				02/28/86				
P1016	CONFIGURATION MANAGEMENT PLAN (CMP)				02/28/86				
P1017	SYSTEM SAFETY PROGRAM PLAN (SSPP)				01/31/86				

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P1018	COMPUTER RESOURCES MANAGEMENT PLAN (CRMP)				01/31/86				
P1019	PHYSICAL SECURITY PLAN (PSP)				02/28/86				
P1020	ACQUISITION PLAN (AP)				01/31/86				
P1021	PRODUCT ASSURANCE PLAN (PAP)				01/31/86				
P1022	PRODUCTION READINESS PLAN (PRP)				02/28/86				
P1023	THREAT SUPPORT PLAN (TSP)				09/30/85				
P1024	RATIONALIZATION, STANDARDIZATION AND INTEROPERABILITY PLAN (RSIP)				12/15/85				
P1025	PROGRAM MANAGEMENT GUIDE FOR LIGHT HELICOPTER FAMILY PROGRAM	XMCO, INC	049 ARI LHX FILE FOLDER (ALLEN)	PROGRAM MANAGER, LHX	06/30/85	P	D	U	R
P1026	COMBAT MISSION SCENARIO SOFTWARE SPECIFICATION	FLIGHT SYSTEMS, INC	007 ARI LHX FILE FOLDER (ALLEN)	FLIGHT SYSTEMS, INC	07/29/85	P	F	U	R
P1027	PROGRAM MANAGEMENT PLAN, ADVANCED ROTORCRAFT TECHNOLOGY INTEGRATION(ARTI)	UNKNOWN	037 ARI LHX FILE FOLDER (ALLEN)	APPLIED TECHNOLOGY LABORATORY, US ARMY RESEARCH AND TECHNOLOGY LABORATORIES (AVSCOM) FT EUSTIS, VA, 23604	11/30/84	P	F	U	P
P1028	MEMORANDUM FOR CG, OTEA, LHX BRIEF TO USA AMBROSE	MAJ THOMAS E. BURCH	039 ARI LHX FILE FOLDER (ALLEN)	CSTE-ASD-E, OTEA	07/30/84	P	F	U	L
P1029	FSD TEST PROGRAM UPDATE	B.G. R.K. ANDRESON, LTC JOHN MAGROSKY, LHX TEST COORDINATOR	018 ARI LHX FILE FOLDER (ALLEN)	AMCPM-LHX	/ /	P	F	U	B
P1030	LHX MISSION EQUIPMENT WEIGHT (TABLES FROM ANOTHER UNSPECIFIED DOC)	UNKNOWN	060 ARI LHX FILE FOLDER (ALLEN)	UNKNOWN	03/03/86	P	F	U	T
P1031	SELECTED ACQUISITION REPORT (RCS:DD-COMP(Q&A)823) PROGRAM: LIGHT HELICOPTER FAMILY (LHX)	UNKNOWN	059 ARI LHX FILE FOLDER (ALLEN)	UNKNOWN	12/31/85	P	F	U	R
P1033	LIGHT HELICOPTER FAMILY (LHX) PM/MATERIEL SYSTEMS ASSESSMENT (PMSA)	UNKNOWN	015 ARI LHX FILE FOLDER (ALLEN)	AVSCOM	11/20/85	P	F	U	R
P1034	LHX BRIEFING OTEA 5 JULY 1984,	MAJ PAUL FARDINK, LTC RON CARPENTER	038 ARI FILE FOLDER (ALLEN)	APPLIED TECHNOLOGY LABORATORY, US ARMY REASEARCH & TECHNOLOGY LABORATORIES, AVIATION SYSTEMS COMMAND	07/05/85	P	F	U	BREF

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P1035	LHX C2E PLAN	MAJ PAUL FARDINK, LTC RON CARPENTER	038 ARI FILE FOLDER (ALLEN)	APPLIED TECHNOLOGY LABORATORY, US ARMY REASEARCH & TECHNOLOGY LABORATORIES, AVIATION SYSTEMS COMMAND (OTEA)	09/13/84	P	F	U	BREF
P1036	THE NEW LHX SYSTEM MANPRINT MANAGEMENT PLAN	COL F. MAYER, DIR OF C.D. ET AL	036 ARI FILE FOLDER (ALLEN) (SUPERCEDES ALL OTHERS)	US ARMY AVIATION CENTER & FT. RUCKER	06/18/86	P	FD	U	PLAN
P1037	LHX NBC	UNKNOWN	041 ARI FILE FOLDER (ALLEN)	UNKNOWN	/ /	P	D	U	BREF
P1038	LHX TSM-ISSUES GENERATED FROM 3 DEC 1985 FT. RUCKER MEETING.	MAJOR RICHARD NEIL, ASST LHX TSM		LHX-TSM	12/03/85	P	F	UN	
P1039	TSM-LHX SYSTEM STATUS REVIEW, 13-15 MAY 1986	TRADOC SYSTEM MANAGER- LIGHT HELICOPTER FAMILY	069 ARI LHX FILE FOLDER (ALLEN)	US ARMY AVIATION CTR & FORT RUCKER	05/16/86	P	F	U	M
P1040	FIELD CIRCULAR 100-1, THE ARMY OF EXCELLANCE	FORCE DESIGN DIRECTORATE	070 ARI LHX FILE FOLDER (ALLEN)	US ARMY COMBINED ARMS COMBAT DEVELOPMENT ACTIVITY	09/01/84	P	F	U	F C

LHX Responsible Agencies

Listing by Command Sequence

LHX REPSPONSIBLE AGENCIES
(AGENREP.FRM)

NAME OF POINT OF CONTACT	SYMBOL	COMMAND	STATION	CITY	ST	A/C	TELEPHONE	AUTOVON	AGENCY RECORD NUMBER
MR. ARMSTRONG	SLCHE-FR	AMC	FORT RUCKER		AL	205	255-3303	558-3303	G1042
MR. C. READING	AMCPM-LHX	AMC	AVSCOM	ST LOUIS	MO	314	263-1270	693-1270	G1039
LTC CLAY	AMCPM-LHX	AMC	AVSCOM	ST LOUIS	MO	314	263-1813	693-1813	G1003
MR. LEMANSKI	AMS-PM-TDNEN	AMC	PM-TRADE	ORLANDO	FL	305	646-5761	791-5761	G1049
MR. GAINER	PERI-IR	ARI	FORT RUCKER		AL	205	255-3686	558-4404	G1001
MAJ HINTZE	PERI-SM	ARI	ARI, HQ	ALEXANDRIA	VA	202	274-8917	284-8917	G1040
MAJ DVORSKY	CSTE-AVSD	OTEA	OTEA, HQ	FALLS CHURCH	VA	202	756-2290	289-2290	G1044
LTC GRAM	TSM U/LHX	TRADOC	FORT RUCKER		AL	205	255-2160	558-2160	G1002
LTC MC CLELLAN	ATCD-B	TRADOC	FORT MONROE		VA	804	727-4243	680-4243	G1043
MAJ RUSHO	TSM U/LHX	TRADOC	FORT RUCKER		AL	205	255-2205	558-2205	G1006
CPT SAUER	ATZQ-CDM-R	TRADOC	FORT RUCKER		AL	205	255-4576	558-4576	G1041
MAJ STOKER	ATCH-MGF	TRADOC	FORT LEE		VA	804	734-1834	687-1834	G1046
MSG TANND	ATZH-DTN	TRADOC	FORT GORDON		GA	404	791-2993	780-2595	G1047
CPT TUCKER	ATZI-NPM-S	TRADOC	SSC-NCR	ALEXANDRIA	VA	202	325-0949	221-0946	G1048
CW3 WAERSCH	ATSQ-TDN	TRADOC	FORT EUSTIS		VA	804	878-6608	927-6608	G1045

LHX MANPRINT ISSUES DATA BASE

Data Base Management System Design

Introduction

The following describes the design of the Allen LHX MANPRINT data base management system (DBMS). This DBMS relates LHX MANPRINT issues to the sources, documents, and other materials that create or explain the issues and the findings of analyses as reported in analytical documents. In addition, a variety of report forms was developed to produce hard copy for analysts and government officials who, in making decisions, may wish to consider these data. Examples of these forms are attached.

DBMS Files

The DBMS consists of a number of related files:

- Source document files that contain data about the documents that were studied
- Issue files that list data on "issues" identified during the study
- Agency files, with information about agencies with LHX responsibilities

Source Documents

Source documents are categorized into requirements, analysis, and plans and program management documents:

Requirement Documents. Requirement documents are those which establish identified needs. The data base defined for these documents relates issues identified in analysis documents to the specific requirements found in the requirement source documents. Examples of requirements documents are:

- Required Operational Capability (ROC)
- Letter of Authorization (LOA)
- Request for Proposals (RFP)

Analysis Documents. Analysis documents report the results and display the data of the analyses initiated by a requirements document, such as the ROC. The data base for analysis documents relates the documents to the requirement that prompted the analysis, and to the resulting issues. Examples of analysis documents are:

- Human Factors Engineering Analysis (HFEA)
- Trade-off Analysis (TOA)

Plans and Program Management Documents. The plans and program management document data base contains data that describe how issues raised in the analyses are planned to be resolved, or if not resolved, raised as unresolved issues. The plans or programs existing or under development are identified. Examples of plans and program documents are:

- Test and Evaluation Master Plan (TEMP)
- New Equipment Training Plan (NETP)

Issues

The issues in this data base are mostly in the form of questions, which have emerged from requirements and analysis source documents, and other inputs. Each issue consists of a record that relates issue statements to sources that identify or describe the issue and analyses that illuminate it.

Responsible Agencies

The Responsible Agency data base contains data about the agency having responsibility for the resolution of the issue, or the preparation of a specific report.

The following scheme illustrates the structure of the Data Base Management System (DBMS).

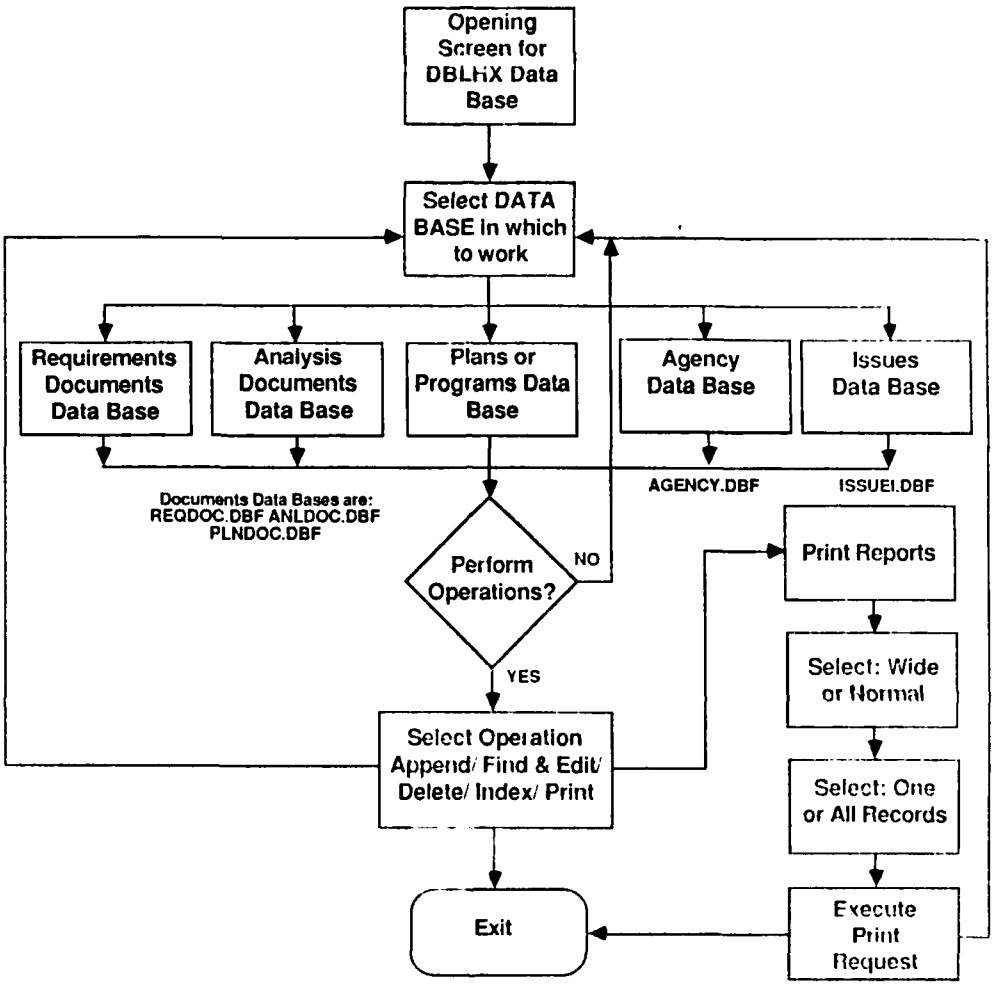


Figure A-1. LHX MANPRINT Issues data base design.
Allen Corporation of America, October 1986

Access and Use of the LHX MANPRINT Issues Data Base

General

The overall purpose of the DBMS is to facilitate data retrieval and support for the documentation of critical MANPRINT issues for consideration by Army managers. The DBMS will not do the analysis. It will, however, permit accessing issue-related data in a timely and flexible way in order to provide reports for use in the analysis.

The Introductory Screens identify the DBMS and state the rules for accessing data. To the largest extent possible, the program is menu driven so that users can select the operation they wish to perform. However, access to a dBASEIII query language is permitted. This will enable the user to ask questions that have not been foreseen and facilitated through selecting menu items. Thus, the first few screens will provide the user a view of the available options. These screens are the results of programs and their use will invoke other programs to display information of interest. The user should keep in mind that the query language is always available as a menu option to allow the user flexibility to obtain other information.

A password is required of the user to enter the files for alteration or other use, providing a measure of security for the data. The current password and the method for changing it, as well as the documentation for the PASSWORD program, may be found in the "Administrator's Annex." This annex also includes installation procedures.

The data base management system uses the programming language called "dBASEIII," a product of Ashton-Tate, Incorporated. It is usable on an IBM or compatible microcomputer, operating under MS-DOS 2.00 or higher. Generally, the data base will be usable on any computer that will run dBASEIII, although the programs were developed on a computer with 640K of random access memory. Because the Issues data base is so large, the data base management system should be run on a computer with a 10 megabyte hard disk. A smaller Issues data base would allow running the DBMS on a floppy disk based system, but the hard disk also provides faster response to queries. The data bases and related programs are supplied on three double-sided floppy diskettes. Users must supply their own copy of dBASEIII. In addition, reports shown in this document were produced on a wide carriage printer, and reduced photographically for this report. It is recommended that a wide carriage dot matrix printer be used for reports, although users may elect to use the more common letter-width printer for reports from data bases other than the ISSUEI data base.

Data Base Types

The data bases contain MANPRINT information related to three classes of activities:

- Operation
- Maintenance
- Support

Source Document Data Bases

There are three document data bases, one for each of the three kinds of documents that we have categorized as the LHX available documents.

- Requirement Documents
- Analysis Documents
- Plans and Program Management Documents

Issues Data Base

The Issues data base is linked to the Document data bases to derive reports that list the basis for the ISSUE and support it. In addition, the Issues data base is linked to the Agency data base.

Responsible Agency Data Base

The responsible agency data base contains names and pertinent data of the agency having responsibility for the resolution of a specific issue.

Data Base Names and Fields

Because dBASEIII places limitations on the length of file names, the following data base names have been selected for the associated data types:

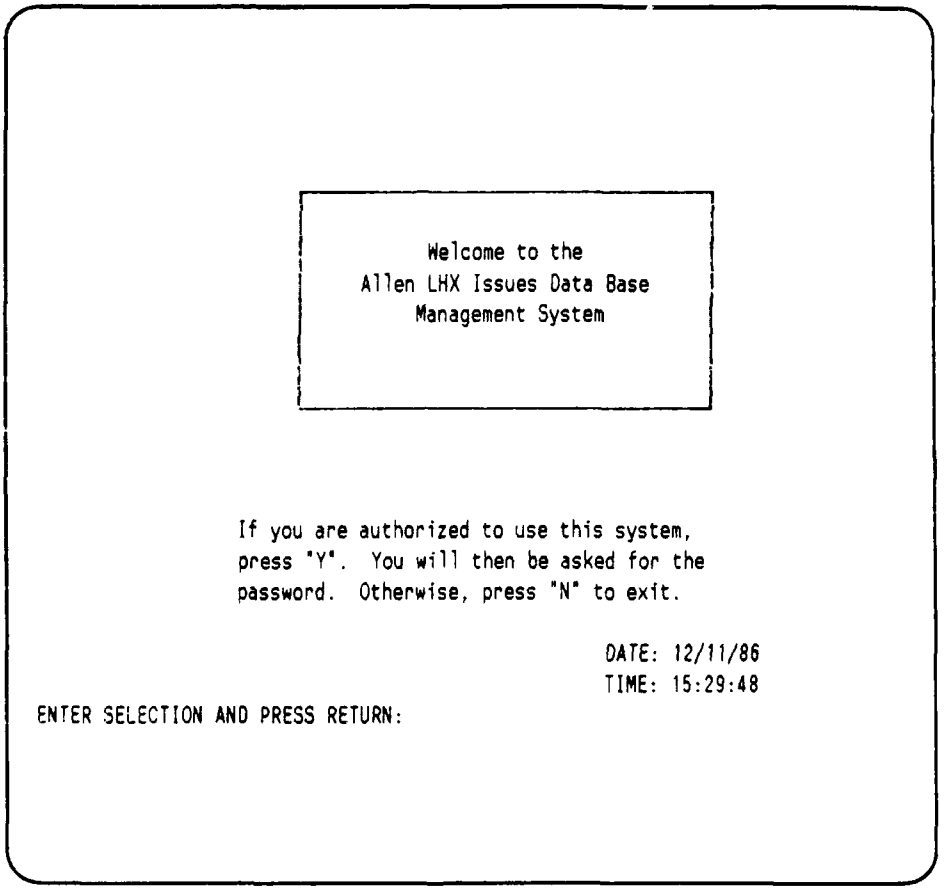
REQDOC	Requirements Documents
ANLDOC	Analysis Documents
PLNDOC	Plans/Programs Management Documents
ISSUEI	ISSUES
AGENCY	AGENCY

Data Base Programs

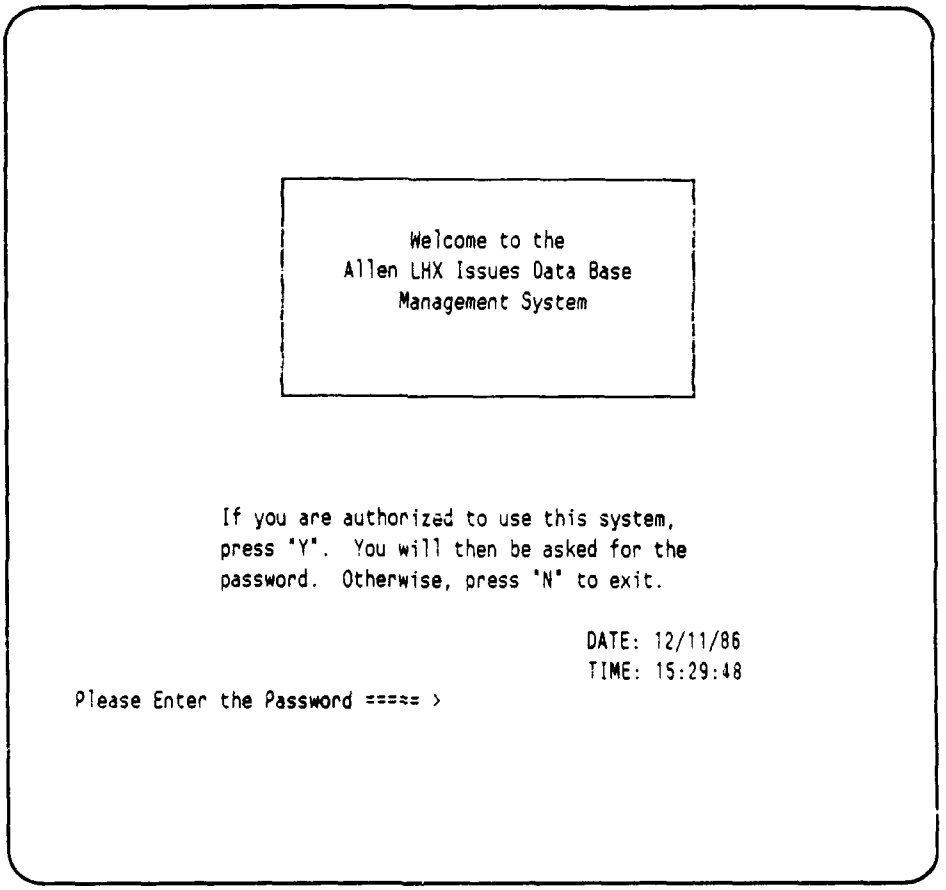
Programs have been written to enable ease of entry and data retrieval from the files. The following programs provide for access to and use of the various data bases:

DOCU1	DOCU	PASSWORD	REKENT	REQMEM
ANLMEN	PLNMEN	ISSMEN	AGENMEN	PNT1
PNT2	FI	LISTER	HEADN	HEAD1N
ISFIND	ISDEL	PNTONE	HEADLIS	LISTER1N
LISTERN				

DOCU1. This is the initial program for entering the DBMS. It displays a screen that invites the user to enter 'Y', if authorized to enter the data base. If the user is not authorized, then 'N' may be pressed to permit an escape. If the user types 'Y', the next program invoked is the password program. (DOCU is a program that displays the title box seen in DOCU1.)



Password. This is the program that enables entry to the DBMS. A series of pound signs appears as the user types the correct sequence of characters in the password. If the user mis-types, the program returns the computer to DOS. Otherwise, the program enters the main menu. (The password currently in use is documented separately in the Annex.)



REKENT. At the main menu program for the DBMS (REKENT), the user may select a data base by pressing the first letter of the name of the data base and the return key. (In general, the capitalized first letter of the selection is the key to press. In some cases, as in aG)ency, it is the second letter, uppercase G, which is the key to press.) Each of the programs from the main menu makes available the same kinds of operations for the data base selected.

The Main Menu permits access to the following data bases:

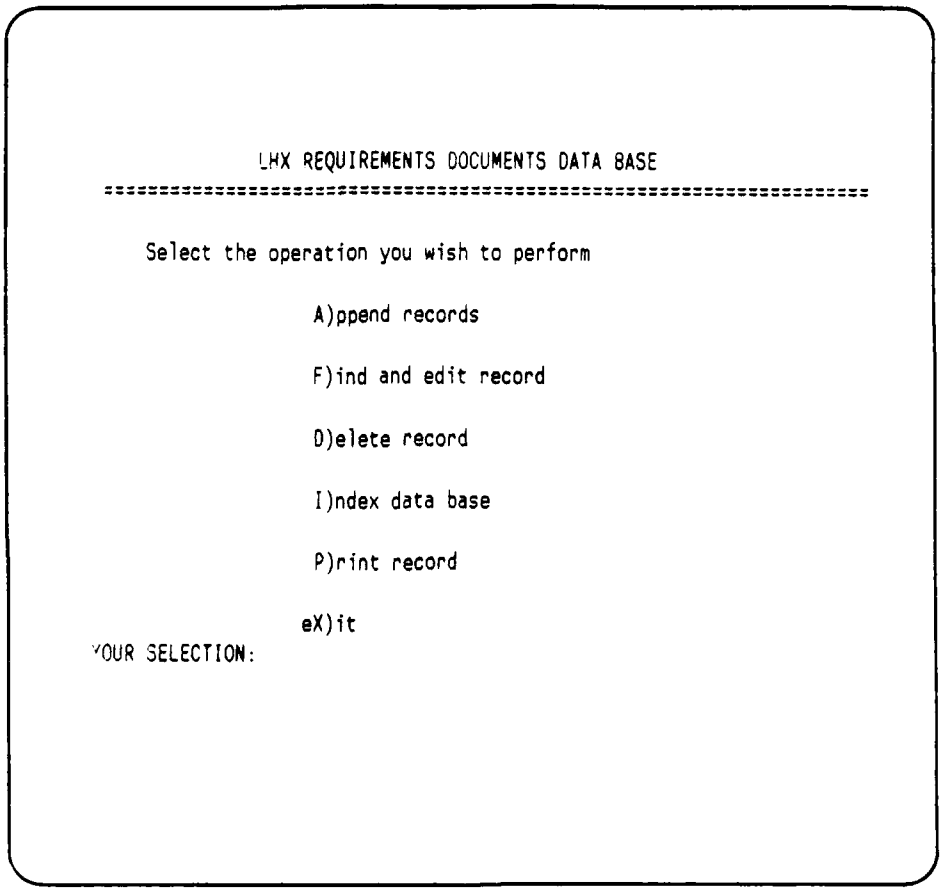
Requirements Documents
Analysis Documents
Plans and Programs Documents
Issues
Agency

It also permits returning to the dot prompt (.) or to DOS. After selecting a data base and performing an operation, the user is returned to the main menu for any further operations.

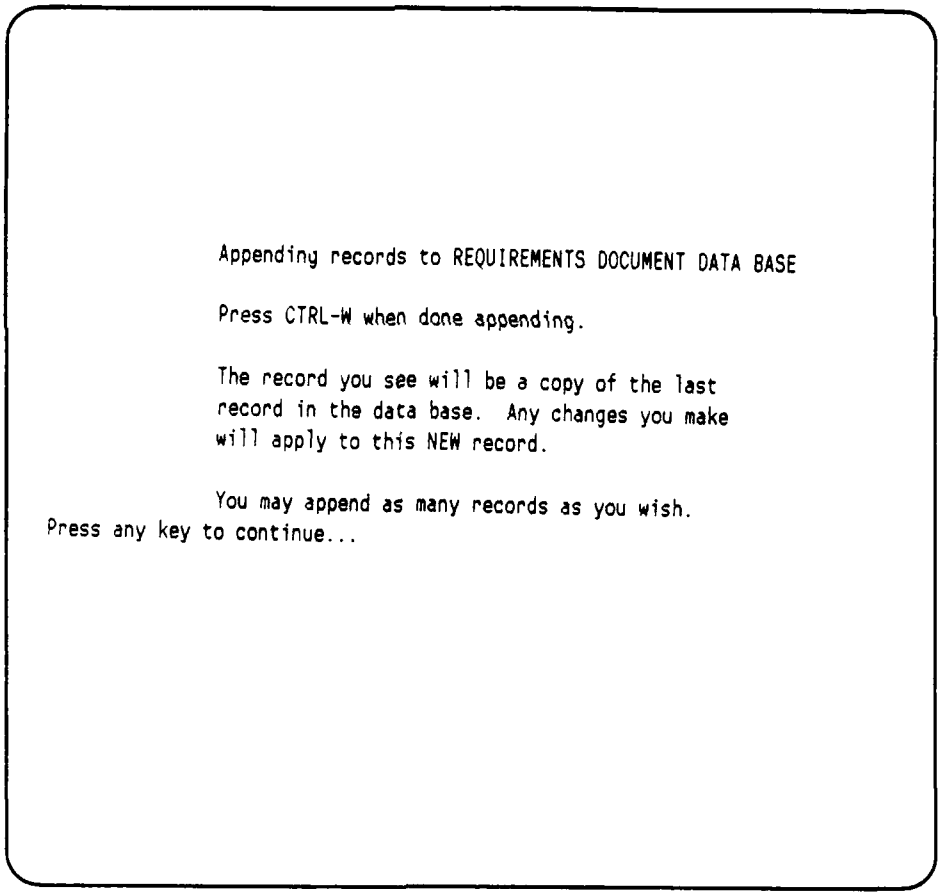
```
15:30:50                          MENU                          12/11/86

                          LHX DATA BASES

============================SELECT A DATA BASE================================

                  R)equirements documents database

                  A)nalysis documents data base

                  P)rograms/planning documents data base

                  I)ssues data base

                 aG)ency data base




--------------------------------------------------------------------------------
                                  X: EXIT DBASE TO DOS
                                  C: return to DBASE '.' PROMPT
YOUR SELECTION:
```

REQMEM. This is the program that uses the Requirement document data base. It permits the following operations to be performed:

APPEND
FIND AND EDIT A RECORD
DELETE A RECORD
INDEX THE DATA BASE
PRINT RECORDS
EXIT



Append. This program makes a copy of the last record in the data base and displays the copy in the full edit mode. The only difference between the record displayed on the screen and the one from which it was made is the record number which appears at the top of the record in the area that is not highlighted. Changes may then be made to this copy in order to input the data associated with this new record. Any number of records may be appended by pressing the "Page Down" key. Records that are appended in this way will be saved when the user exits from APPEND by pressing the Ctrl key and the "W" key at the same time (called: CTRL-W). This causes the new record(s) to be appended to the set of old records. Pressing the ESC key or pressing CTRL-Q will abort the append process. In this latter case, any records entered prior to pressing ESC or CTRL-Q will be lost, and the data base will be returned to its previous (unappended) condition. Before leaving the append function, the program automatically reindexes the data base so that appended records may be found. Indexing the documents data bases takes very little time; indexing the Issues data base takes about two minutes.

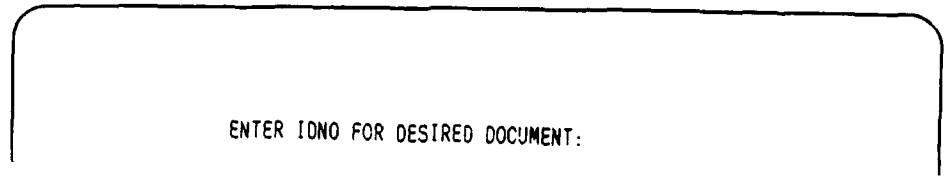


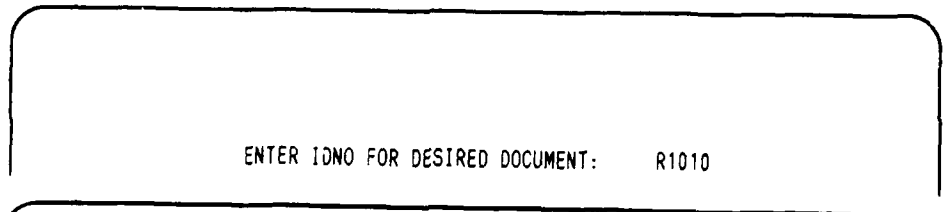
The following is typical of the display that would appear if the user selected "Append" and pressed return.

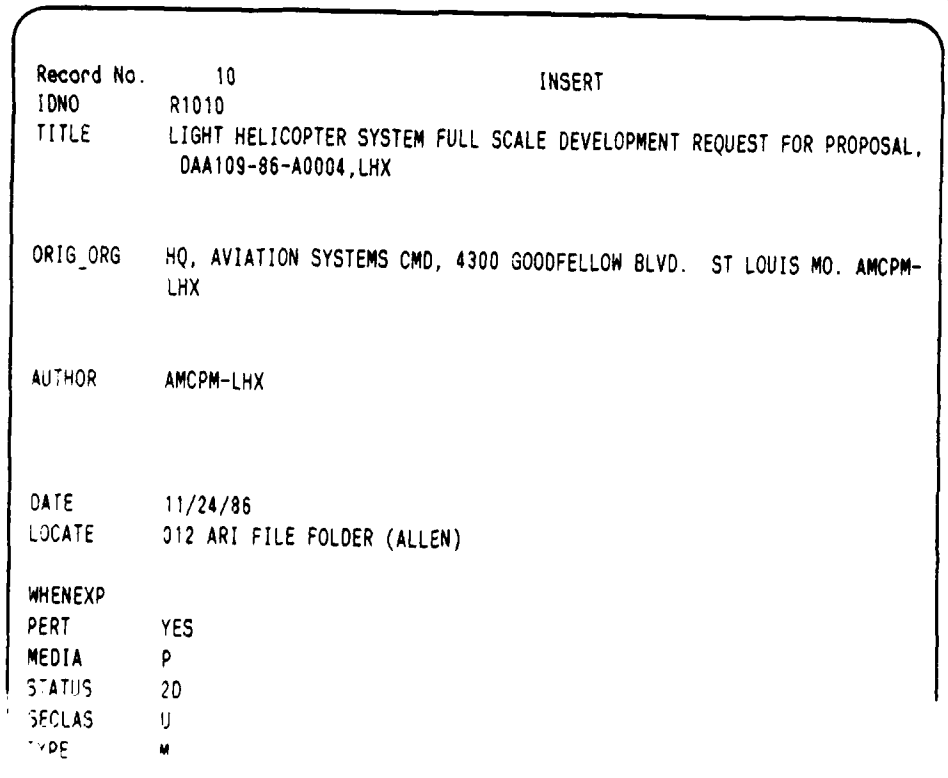
```
Record No.      11                              INSERT
IDNO            R1010
TITLE           LIGHT HELICOPTER SYSTEM FULL SCALE DEVELOPMENT REQUEST FOR PROPOSAL,
                 DAA109-86-A0004,LHX


ORIG_ORG        HQ, AVIATION SYSTEMS CMD, 4300 GOODFELLOW BLVD.  ST LOUIS MO. AMCPM-
                LHX


AUTHOR          AMCPM-LHX



DATE            11/24/86
LOCATE          012 ARI FILE FOLDER (ALLEN)

WHENEXP
PERT            YES
MEDIA           P
STATUS          2D
SECLAS          U
TYPE            M
```

Find and Edit. This program requires entering the specific Identification Number (IDNO) for the record desired. For the document data bases, the IDNO is a five-digit alphanumeric that uniquely identifies the particular document. Requirements documents always start with the letter 'R', and run upwards from R1001. Analysis documents always start with the letter 'A' and run upwards from A1001. Finally, Plans/Programs documents always start with the letter 'P' and run upwards from P1001. For the Issues data base, the unique identifier is called the issue code (ISSU_CD field). In addition, the Issues data base records may be accessed using the "Critical Question Number," which appears in the System MANPRINT Management Plan. In view of the foregoing, a valid list of IDNOs, and/or Critical Question Numbers should be available to the user, or else the message "DOCUMENT NOT FOUND" will be shown (if in the document data bases) or "RECORD NOT FOUND" (if in the Issues data base.)

The following shows the sequence of screens for finding a specific record.







Delete a Record. This program requires entering the IDNO of the record to delete. If the IDNO the user enters does not exist, the "Document not found" message will be shown. If the record is found, the IDNO and the title of the document will be displayed, and the user is asked to verify that the found record is the one to delete. If the answer is yes, when the user presses 'Y', the record will be marked for deletion and displayed to the user. The user will then press any key to complete the deletion. It is possible to abort the deletion at any time up to this point by pressing the ESC key. The following illustrates the screen sequences for deleting a record.

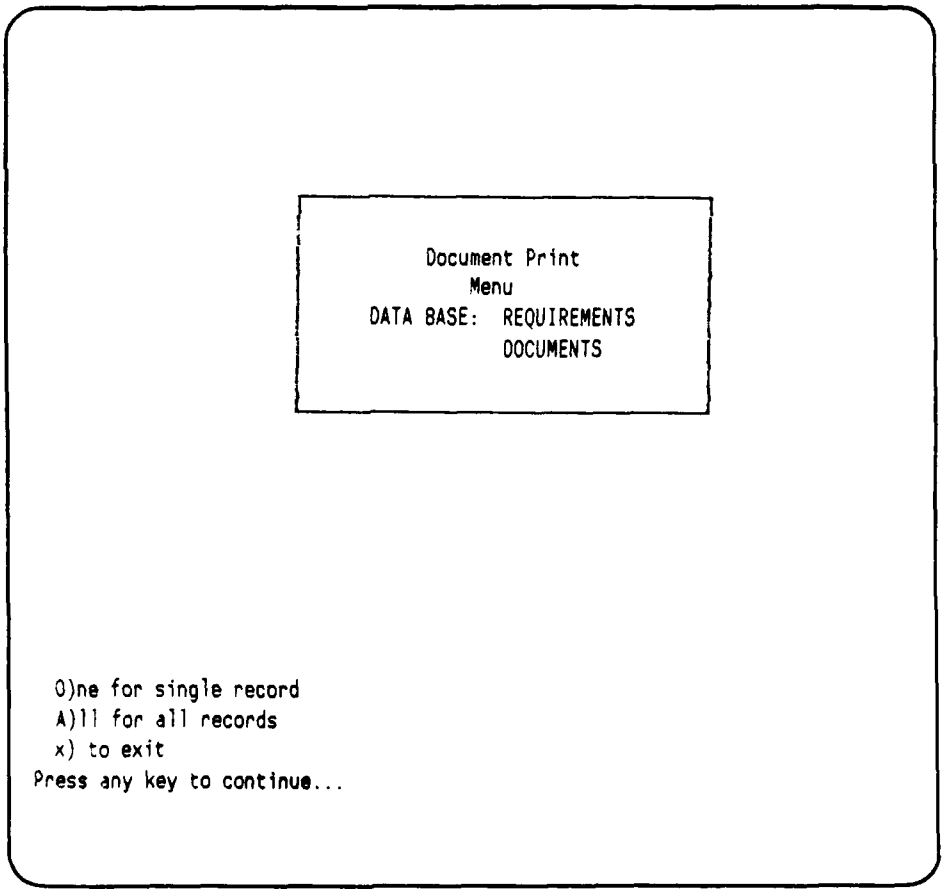
```
ENTER THE IDNO OF THE RECORD TO DELETE:
```

```
ENTER THE IDNO OF THE RECORD TO DELETE:  R9999
```

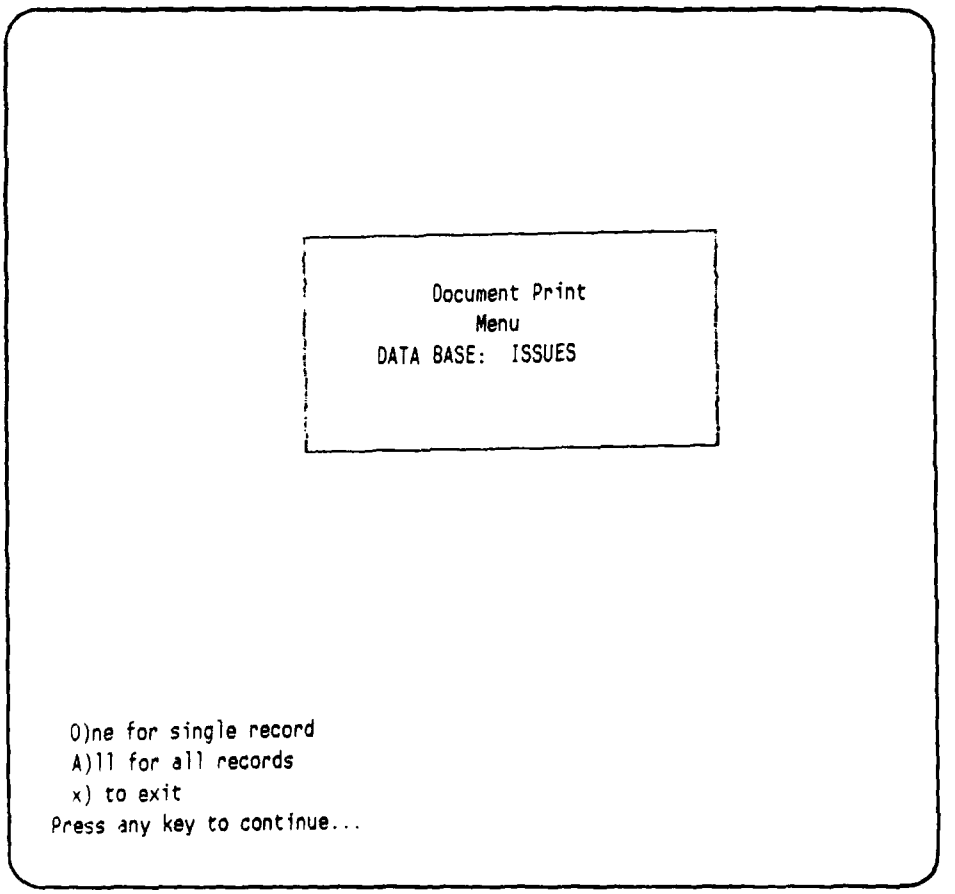
```
ENTER THE IDNO OF THE RECORD TO DELETE:  R9999

R9999 LIGHT HELICOPTER SYSTEM FULL SCALE DEVELOPMENT REQUEST FOR PROPOSAL, DAA10
9-86-A0004,LHX


IF THIS IS THE RECORD TO DELETE, PRESS YY
     11 *R9999 LIGHT HELICOPTER SYSTEM FULL SCALE DEVELOPMENT REQUEST FOR PROPOS
AL, DAA109-86-A0004,LHX

                              HQ, AVIATION SYSTEMS CMD, 4300 GOODFELLOW BLVD.  S
T LOUIS MO. AMCPM-LHX

                                          AMCPM-LHX


                                                          11/24/86 012 ARI FIL
E FOLDER (ALLEN)
          YES P 2D U    M    ....
Press any key to continue...
```

Index the Data Base. This is a procedure that arranges the records in a specific sequence. The documents' data bases are arranged in IDNO sequence. A message appears during the period when indexing is happening to say that the operation is being performed. No other message appears. In the Issues data base, the indexing is done twice, because of the option to provide access to records on the basis of either Issue Code (Issu_CD), or Critical Question Number (MMPQNO). Again, the operation is automatic, with messages being presented to keep the user aware of which indexing operation is being performed.

Print. This program enables the printing of a single record, or the printing of all the records in the data base. For all data bases other than the Issues data base, if Print is selected, the user is asked to select either printing on a wide carriage printer or a normal carriage printer, in addition to selecting "one record to print" or printing all the records. If the user selects one record, then the user must specify the IDNO, Issu_CD, or critical question number of that record. If the user selects all records, then the user is given a choice of several different record listing formats to choose from in another menu. (Not all data bases have multiple formatted reports.)



Issues Print. The Issues Print program is more complicated than programs for displaying data about the documents because there are different kinds of reports that are available. In addition, the reports require the use of a wide carriage printer. Normal printer reports are not available for the Issues data base. The following sequence shows selection of either the issues fields reports or the memo fields reports, selected by either choosing one or all reports.



```
                        SELECT REPORT TYPE

                        I)ssues fields report
                        P)roposed solutions report

                        eX)IT

Press any key to continue...
```

```
                        SELECT REPORT TYPE

                        I)ssues fields report
                        P)roposed solutions report

                        eX)IT

Press any key to continue...I
ENTER THE ISSUE CODE FOR DESIRED record 01003
```

```
                        SELECT REPORT TYPE

                        I)ssues fields report
                        P)roposed solutions report

                        eX)IT

Press any key to continue...P
ENTER THE ISSUE CODE FOR DESIRED RECORD: 01003
```

```
                TO SELECT IMPACT/PROPOSED SOLUTION, PRESS "Y"
                OTHERWISE,PRESS RETURN.

WHAT IS YOUR SELECTION? Y
```

```
                    Document Print
                        Menu

                    FORMATTED REPORTS


                    SELECT DESIRED REPORT FORM

I)SREP-S   (List by SMMP QUESTION, index: MMPQNO + TYPECD + ISSUTYP)
L)ISTER    (List by SMMP QUESTION, of IMPACT, SOLUTION MEMO fields )
T) ISREP-T (List by CRITICAL SCORE within MANPRINT DOMAIN index: TYPECD + CSCD)
N) LISTERN (List by CRITICAL SCORE within MANPRINT DOMAIN, of MEMO fields)

eX)it

            YOUR SELECTION:
Press any key to continue..
```

EXIT. This program permits the user to return to the main menu.

PNT1 and PNT2. These subroutines used in the print program to facilitate printing desired records.

LISTER. This program will provide a printout of memo fields of records within the Issues data base, arranged in the sequence of critical question number, TYPECD, and ISSUTYP.

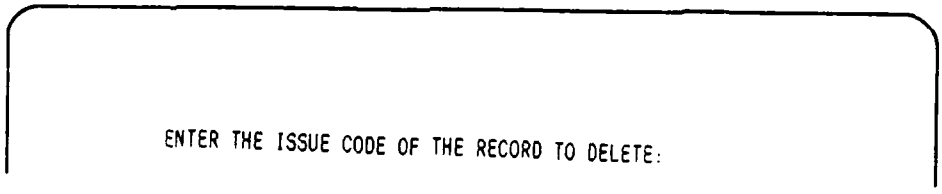
LISTERN. This program will provide a printout of memo field of records within the Issues data base, arranged in the sequence of Issu_CD.

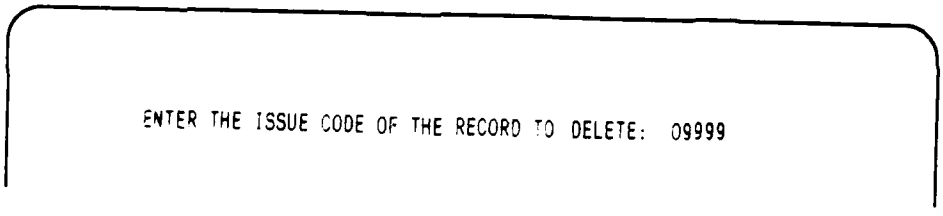
LISTER1N. This program will provide a printout of memo fields of a single record selected by input of the Issue code.

HEADN, HEAD1N, and HEADLIS. These are formatting programs used with LISTER programs to provide appropriate headings.

ISFIND. This is a program called from ISSMEN that finds a requested record from input by the user in either the form of critical question, or of Issue code.

ISDEL. This is a program called from ISSMEN that deletes a requested record in accordance with input by the user. Since several records in the Issues data base may have the same critical question number, ISDEL requires that both critical question number and Issue code be input by the user. The user first inputs the Issue Code of the desired record. When the computer has finished searching, it displays all the record numbers, ISSU_CD, MMPQNO, and critical question for review by the user. The user is then asked to select from among the records shown the specific record where the Issue code and the critical question Number are those of the record to delete. The user is then asked to confirm that the record is the correct one. Finally, the program displays the records that have been 'deleted.' The following screens show the sequence of steps performed:





```
Record#  ISSU_CD MMPQNO                          CRITQUEST
    103  09999   1.20R                          CAN SINGLE PILOT OPERATION BE AC
HIEVED WITHOUT MILLIMETER WAVE RADAR AND INTEGRATED COMMUNICATION, NAVIGATION, A
ND IDENTIFICATION AVIONICS?
```

ENTER THE CRITICAL QUESTION NUMBER (MMPQNO) OF THE RECORD TO DELETE:

```
Record#  ISSU_CD MMPQNO                          CRITQUEST
    103  09999   1.20R                          CAN SINGLE PILOT OPERATION BE AC
HIEVED WITHOUT MILLIMETER WAVE RADAR AND INTEGRATED COMMUNICATION, NAVIGATION, A
ND IDENTIFICATION AVIONICS?
```

ENTER THE CRITICAL QUESTION NUMBER (MMPQNO) OF THE RECORD TO DELETE: 1.20R

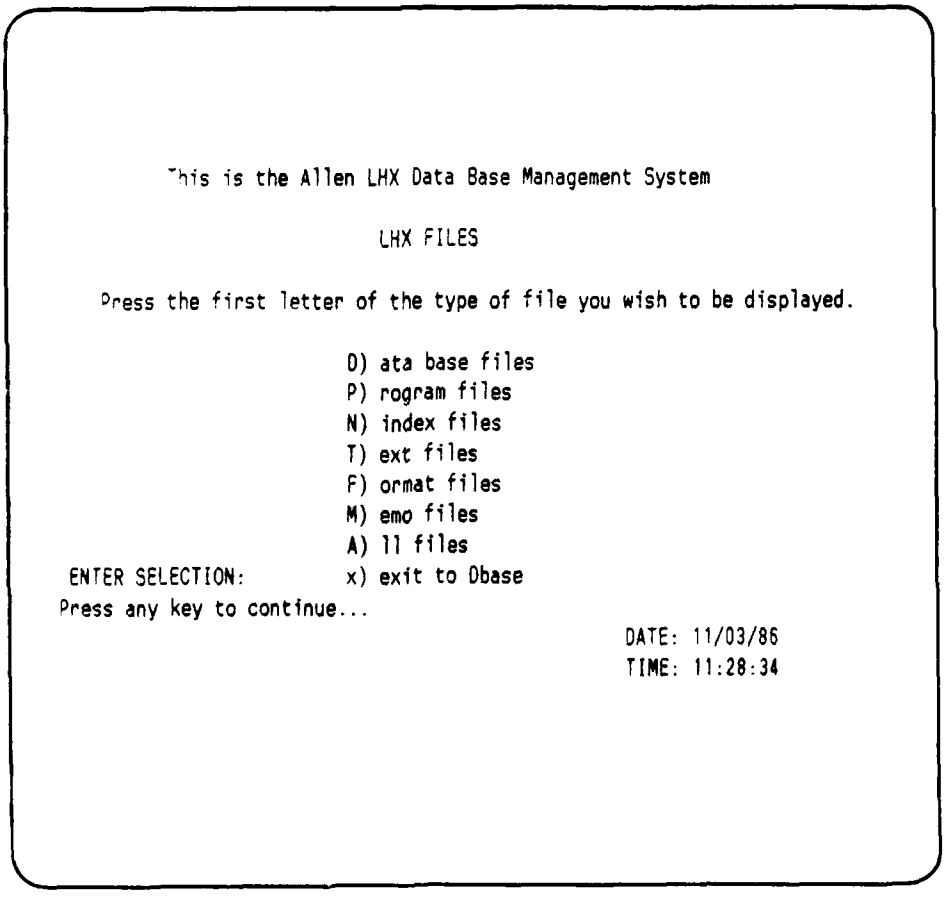
```
Record#  ISSU_CD MMPQNO                          CRITQUEST
    103  09999   1.20R                          CAN SINGLE PILOT OPERATION BE AC
HIEVED WITHOUT MILLIMETER WAVE RADAR AND INTEGRATED COMMUNICATION, NAVIGATION, A
ND IDENTIFICATION AVIONICS?
```

IF THIS IS THE RECORD TO DELETE, PRESS Y: Y

```
          DISPLAYING ALL DELETED RECORDS...

Record#  ISSU_CD MMPQNO                          CRITQUEST
    103 *09999   1.20R                          CAN SINGLE PILOT OPERATION BE AC
HIEVED WITHOUT MILLIMETER WAVE RADAR AND INTEGRATED COMMUNICATION, NAVIGATION, A
ND IDENTIFICATION AVIONICS?

Press any key to continue...
```

ANLMEN and PLNMEN. These are menu programs identical to REQMEM, and result in access to the Analysis Documents data base or Plans and Programs data base, respectively, to perform identical operations.

FI. This is a directory program that permits quick recall of a user-selectable set of file names, accessed according to their suffix, DBF, NDX, PRG, TXT, and DBT. To use the program, at the dot prompt (.) type "DO FI". A list of selectable file types, including the selection to display all files, will be displayed. Selection is made by pressing the first letter of the file type desired. At the lower portion of the screen will be displayed the actual file names available. This program is useful when interacting with the query language directly since precise filenames must be used. It is equivalent to the command: "Display files like *.xxx, where xxx represents the suffix of interest, and the * represents all prefixes with the xxx suffix.



Index files

Data base files are frequently "indexed." (Indexing puts the files in a desired order. It is similar to sorting, but does not create a new data base which sorting would do. Indexing creates a set of pointers that tell the computer which records should follow other records according to some indexing criterion specified by the person who did the indexing.) Indexing is necessary for using more than one data base at a time. All data bases containing document IDNOs will have an index file that indexes the records on the basis of the IDNO. These files are called:

PLNDEX related to the PLNDOC data base
ANLDEX related to the ANLDOC data base
REQDEX related to the REQDOC data base
AGNDEX related to the AGENCY data base

Thus, a typical command construction would be:

USE ANLDOC INDEX ANLDEX

This would ensure that the ANLDOC Data Base records were shown in the order of the IDNOs. When data are selected from several data bases they must be selected on the basis of a common field, in this case the IDNO. For the most part, the filenames for the index files suggest the fields upon which the index was made. Thus, ISSCD is an index file for the ISSUEI data base, in which the ISSU_CD is used as the index key. For the index, ISMTYTY, the keys are the critical question number, the type code, and the issue type. Whenever new records are added to any data base it is advisable to index the data base following this action. The reason is that the data base programs use indexed files to find records or print them. If a new record has not been included in the index, it will not be found by the program even though it exists.

Reports

Reports may be obtained from the data bases in several ways:

Screen reports. Screen reports are normally obtained through the use of the query command available at the dot prompt (.). For instance, to obtain a listing of the IDNO, the ISSUE, and the CRITSCR for all the records in the ISSUEI data base for which the CRITSCR was equal to 'E' one would type:

```
. USE ISSUEI INDEX ISSCD
. LIST IDNO,ISSUE,CRITSCR,FOR CRITSCR = 'E'
```

Inquiries like this are done interactively.

Hard copy reports. Hard copy reports can be obtained either interactively as with screen reports, or can be the result of invoking a program.

Reports by program. Programmed reports are those which result from invoking a print program. The program called LISTER is a print program. It uses the ISSUEI data base.

Formatted reports. Formatted reports are those which have been generated by the dBASEIII report generator. These reports do not display contents of MEMO fields, but display only fields that are not memo fields which have been selected for the report.

Reports that are available to display data in the ISSUEI data base are:

ISREP-S, LISTER, ISREP-T, AND LISTERN

The first report is invoked through using the query language by typing: REPORT TO PRINT ISREP-S, or it may be obtained by selecting it from the print menu, available in Issues data base operations. ISREP-S uses the index ISMTYTY and produces reports that are ordered in SMMP critical question number sequence. LISTER produces memo fields reports, ordered in critical question number sequence. ISREP-T and LISTERN produce the same kinds of reports as the other two except that the listings are ordered by criticality score within MANPRINT domains, with the "essential" score within operation being shown first.

DATA BASE STRUCTURE AND FIELD DEFINITIONS

The following pages document the structure of the data bases and define the fields. Examples of data collection forms are also provided.

Document Data Base Field Names

The following specifies the Field Names for the Document DATA BASES (REQDOC, ANLDOC, PLNDOC) and describes them:

FIELDNAME	TYPE	LENGTH	DESCRIPTION
IDNO	CHAR	5	Unique identifying serial number for each record. Leading Alpha Character: R1001, A1001, P1001 to picture (X9999).
TITLE	CHAR	255	Document title in full. (First 20 characters are reserved for short subject word).
ORIG_ORG	CHAR	255	Originating organization as shown on the Title page or the 1434 if it exists.
AUTHOR	CHAR	255	The name of the organization or person(s) who prepared the report or document.
DATE	DATE	8	Date of publication.
LOCATE	CHAR	80	The place where the document may be found.
WHENEXP	CHAR	20	The data when the document will be available.
PERT	CHAR	1	Y or N as to pertinency to ASARC Issues.
MEDIA	CHAR	1	Code to indicate the medium in which the document is available: P,print; U, microform; V,video; S, 35mm slides.
STATUS	CHAR	2	Code to specity the timeliness of the document: D, draft; FD, final draft; F, final; U, Unknown.
SECLAS	CHAR	4	Security Classification, as specified in DTIC DED.
TYPE	CHAR	4	Document type: M, memo; TR, Technical Report; RFP, request for proposal; others as specified in the DED.

Issues Data Base Field Names

The following specifies the Field Names for the ISSUEI DB and describes them:

FIELDNAME	TYPE	LENGTH	DESCRIPTION
ISSU_CD	CHAR	5	Unique identifier code for each record in the Issues Data Base, consisting of a prefix (O, M, or S) and a four-digit suffix 1001 to 9999 within each class. O, operator; M, maintainer; S, support
ISSUTYP	CHAR	15	A phrase to classify the issue for sorts.
CRITSCK	CHAR	3	An alphabetic character indicating the criticality of the issue. E=essential, H=high, M=medium, L=low.
ISSUE	CHAR	254	Concise statement of the issue.
CRITQUEST	CHAR	250	The critical question as it appears in the System MANPRINT Management Plan.
ISSUEM	MEMO	10	Same concise statement in a memo field.
CONSUP	CHAR	160	Statement identifying source supporting selection of item as an issue.
STATUSCD	CHAR	5	Code to reveal current status of ISSUE: PEND, Pending; RES, Resolved; UNK, Unknown; UNRES, Unresolved
PROPSOL	MEMO	10	Statement of the proposed solution to the issue.
IMPACT	MEMO	10	Statement of the effect the unresolved issue could have.
AGNCY CD	CHAR	5	Code to identify the agency in the AGENCY data base having responsibility for the resolution of the issue
RESPAGENCY	CHAR	10	Agency responsible for resolution of Issue.
TYPECD	CHAR	1	Code to identify activity class of Issue: O=1, Operator; M=2, Maintainer; S=3, Support
IDNO	CHAR	5	IDNO of the source document that is cited as related to or describes the reason for the issue. This field links the issue to the specific document data base.
REFCD	CHAR	255	The page and/or paragraph number of the source document referring to this issue record.
RELATE_I	MEMO	10	This memo field, up to 4000 characters, is for describing related issues and types (of significance to the individual).
RELATE_U	MEMO	10	This memo field, up to 4000 characters, is for describing related issues and types (of significance to the Unit).
RELATE_A	MEMO	10	This memo field, up to 4000 characters, is for describing related issues and type (of significance, Army-wide).
RELATE_F	MEMO	10	This memo field, up to 4000 characters, is for describing related issues and types (of significance for facilities).

Issues Data Base Field Names (continued)

FIELDNAME	TYPE	LENGTH	DESCRIPTION
WHENRES	CHAR	20	The name of the event (like FSD) by which the the issue is to be solved.
SOLUSRS	CHAR	254	Identification of source of solution to issue.
RISK	CHAR	254	Relative risk, high, medium, low if issue is not resolved.
MMPQNO	CHAR	30	Allen Corp SMMP Critical Question number.
CQNO	CHAR	5	SMMP Critical Question Number.
BLNKLN	CHAR	20	A series of periods (.) to enable spacing between successive records.
CSCD	CHAR	1	Critscr code: E=1,H=2,M=3,L=4

Agency Data Base Field Names

The following specifies the Field Names for the Agency DB and describes them:

FIELDNAME	TYPE	LENGTH	DESCRIPTION
AGNO	CHAR	5	Unique identifying number for each record.
AGNCY_CD	CHAR	5	Unique identifying serial number for each AGENCY.
IDNO	CHAR	5	IDNO of the document for which the POC has cognizance.
ISSU_CD	CHAR	5	Identifier code for record in ISSUES data base which specifies this agency as responsible for issue resolution.
SYMBOL	CHAR	12	Military office symbol.
COMMAND	CHAR	20	The name of the Command of point of contact.
STATION	CHAR	20	The military location of point of contact.
CITY	CHAR	20	The city of POC, if relevant.
STATE	CHAR	2	State abbreviation.
ZIP	CHAR	10	Code to ten-digit zip code if one exists.
POCNAME	CHAR	30	Title and full name of Point of Contact.
AREA_CD	CHAR	3	Commercial telephone area code.
TELNO	CHAR	8	Commercial telephone number.
AVNO	CHAR	8	Autovon telephone number.

Data Collection and Data Entry

Entries to the data bases are from data collection forms that are arranged in the same format as the on-screen data entry screens. Data collection forms should be utilized by analysts. Actual entry to the data base should be done by data entry personnel.

LHX Document Data Base
Record Format

(Prepared by:_____ Date:_____)

==========

Identification number: (IDNO)_____

Document title:
(TITLE) _____

Originating organization: (ORIG_ORG)_____

Author: (AUTHOR)_____

Date of publication: (DATE: MM/DD/YY)_____

Where document may be found: (LOCATE:)_____

Date of expected document availability: (WHENEXP:)_____

Is the document pertinent to ASARC issues? (PERT:)(y/n/unk)___

Media of publication: (MEDIA:P,U,V,S)___

Status of the document: (STATUS: D,FD,F,U)___

Security classification of document (SECLAS: *)

Type of document: (TYPE: M, TR, RPT, OTHER)_____

* SECLAS CODES: S, SECRET; SRC, SECRET RESTRICTED DATA; SFRD, SECRET FORMERLY RESTRICTED DATA; ST, SECRET TENTATIVE; C, CONFIDENTIAL; CRD, CONFIDENTIAL RESTRICTED DATA; CFRD, CONFIDENTIAL FORMERLY RESTRICTED DATA; CT,CONFIDENTIAL TENTATIVE; U, UNCLASSIFIED; R, FOREIGN RESTRICTED.

LHX ISSUES Data Base
Record Format

(Prepared by:_____ Date:_____)

==========

Issue Identification Code: (ISSU_CD:)_____

Short phrase to identify issue type: (ISSUTYP : see appendix for listing of predefined ISSUTYPs) _____

Relative criticality score: (CRITSCR: L,M,H,E)___

Statement of Issue: (ISSUE:)_____

_____

Statement of Issue for memo field: (ISSUEM:)___(same as for ISSUE:)_____

Document or reference that supports conclusion an item is an issue: (CONSUP:)

_____

_____

Code to reveal the current status of the issue: (STATUSCD:)

Statement of the proposed solution, if any: (PROPSOL:)_____

_____

_____

Impact of the issue: (IMPACT:)_____

_____

_____

Agency responsible: (AGNCY_CD)_____

Agency responsible for issue resolution: (RESPAGENCY:) _____

Type of issue: (TYPECD:)_

Document IDNO: (IDNO:)_____

Page in source document: (REFCD:) _____

_____

RELATED ISSUES: (RELATE- I,U,A,F)_____

_____

At what event must the issue be resolved? (WHENRES:)_____

Source of solution of Issue: (SOLUSRS:)_____

Risk if issue not resolved: (RISK:) _____

System MANPRINT Management Plan question number: (MMPQNO:)_____
Critical Question: (CRITQUEST:)_____
Critical Question Number: (CQNO:)_____

SAMPLE
LHX DOCUMENT Data Base
Record Format

(Prepared by: JB Date: 3/2/86)

==========

Identification number: (IDNO) A1022

Document title: (TITLE) PROJECTED ACCIDENT COSTS FOR THE LHX AIRCRAFT--INFORMATION MEMORANDUM

Originating organization: (ORIG_ORG) PESC-SE

Author: (AUTHOR) LT. GEN ROBERT M. ELTON, DCSPER

Date of publication: (DATE: MM/DD/YY) 12/23/84

Where document may be found: (LOCATE:) 040 ARI LHX FILE FOLDER (ALLEN)

Date of expected document availability: (WHENEXP:)

Is the document pertinent to ASARC issues? (PERT:)(y/n/unk) Y

Media of publication: (MEDIA:P,U,V,S) P

Status of the document: (STATUS: D,FD,F,U) F

Security classification of document: (SECLAS*:) Uncl

Type of document: (TYPE: M, TR, RPT, OTHER) MEMO

* SECLAS CODES: S, SECRET; SRC, SECRET RESTRICTED DATA; SFRD, SECRET FORMERLY RESTRICTED DATA; ST, SECRET TENTATIVE; C, CONFIDENTIAL; CRD, CONFIDENTIAL RESTRICTED DATA; CFRD, CONFIDENTIAL FORMERLY RESTRICTED DATA; CT,CONFIDENTIAL TENTATIVE; U, UNCLASSIFIED; R, FOREIGN RESTRICTED.

SAMPLE
LHX ISSUES Data Base
Record Format

(Prepared by: JB Date: 5/15/86)

==========

Issue identification code: (ISSU_CD:) 01022

Type of issue: (ISSUTYP:) TNG INT COCKPIT

Relative criticality score: (CRITSCR:) E

Statement of issue: (ISSUE:) CAN AN EFFECTIVE AND ACCEPTABLE HELMET MOUNTED DISPLAY BE DEVELOPED FOR LHX?

Statement of issue for memo field: (ISSUEM:) (same as for ISSUE:)

Document or reference that supports conclusion an item is an issue: (CONSUP:) A1077 , HFEA 1-1/17/86 (FOUO)

Code to reveal the current status of the issue: (STATUSCD:) PEND.RFP

Statement of the proposed solution, if any: (PROPSOL:) WORK BOTH TECHNOLOGY AND HUMAN FACTORS AREAS TO PROVIDE BEST HMD FOR LHX, APPROPRIATE TRAINING.

Impact of the issue: (IMPACT:) INADEQUATE HMD WILL DEGRADE PILOT PERFORMANCE AND HINDER MISSION PERFORMANCE

Agency responsible: (AGNCY_CD)

Agency responsible for resolving issue: (RESPAGENCY:) PM

Type of issue: (TYPECD:O,M,S) O

Document IDNO: (IDNO:) A1077

Page in source document: (REFCD:) P.1 (FOUO)

RELATED ISSUES: (RELATE- I,U,A,F) See also in A1075, HH ISSUES P-18

At what point must the issue be resolved? (WHENRES:) FSD

Source of solution of issue: (SOLUSRS:) A1077 HFEA P.1

Risk if issue not resolved: (RISK:) L A1081 P.8; M/H A1003 P.R-60. par 2

System MANPRINT Management Plan Question Number: (MMPQNO:) 1.01

Critical Question: (CRITQUEST:) IS THE WIDE FIELD OF VIEW TECHNOLOGY MATURE TO SUPPORT LSD FSD?

Critical Question Number: (CQNO:) 1.01

LHX AGENCY Data Base
Record Format

(Prepared by:_____ Date:_____)

==========

Agency record number (AGNO)_____

Agency code (AGNCY_CD) _____

Document identification (IDNO:)_____

Issue code (ISSUE_CD)_____

Office symbol (SYMBOL)_____

Command of point of contact (POC) (COMMAND)_____

Military Installation of POC (STATION)_____

City where POC is located (CITY)_____

State where POC is located (STATE)__

ZIP code for mailing (ZIP)_____

Title and name of POC (POCNAME:)_____

Commercial telephone area code (AREA_CD)____

Commercial telephone number (TELNO)_____

Autovon telephone number (AVNO)_____

SAMPLE
LHX AGENCY Data Base
Record Format

(Prepared by: RCT Date: 3/17/86)

==========

Agency record number (AGNO) G1034

Agency code (AGNCY_CD) P1001

Document identification (IDNO:) R1002

Issue code (ISSUE_CD)_____

Office symbol (SYMBOL) AMCPM-LHX

Command of point of contact (POC) (COMMAND) AMC

Military installation of point of contact (STATION) AVSCOM

City where POC is located (CITY) ST. LOUIS

State where POC is located (STATE) MO

ZIP code for mailing (ZIP) 63120-1798

Title and name of POC (POC) LTC TURNER

Commercial telephone area code (AREA_CD) 314

Commercial telephone number (TELNO) 263-1327

Autovon telephone number (AVNO) 693-1327

GLOSSARY

Because of space limitations of printouts, certain abbreviations were developed either for use as headers or within text. This alphabetized listing defines those abbreviations:

AMC	Army Materiel Command
ANLDOC	Analysis Documents Data Base
ANLDOK	Report format to list ANLDOC contents
AUCP	Automated Cockpit
AUTO	Automated
CDCRITYP	Index file indexing ISSUEI on TYPECD, CRITSCR, and ISSUTYP
CONTIN'S	Continuous
CONTR.	Contractor
CP	Cockpit
DEL	Delivery
E	Essential (no system if issue not resolved)
ENV	Environment
H	High (system seriously degraded if issue remains)
HF	Human Factors
HFEA	Human Factors Engineering Assessment
HH	Health hazards
INST	Instructor
INT	Integrated
ISSUEI	Issues data base version 'I'
ISREP-S	Report form to list non-memo fields in ISSUEI
L	Low (not zero. Might work around issue)
LVL	Level
LRU	Line Replaceable Unit
M	Medium (criticality is between H and L)
MAINT	Maintenance
MANPWR	Manpower
MMPQNO	MANPRINT Management Plan Question Number
MULTI-MI	Multi-mission
OPN	Operation
PLNDOC	Plans and Programs Documents Data Base
PLNDOK	Report format name to list PLNDOC contents
PM	Program Manager
POCS	Report form to list AGENCY data base contents
REQDOC	Requirements Documents Data Base
REQDOK	Report format name to list REQDOC contents
SCAT	Scout Attack
TECH	Technology
TNG	Training
TOA	Trade-off analysis
TRADOC	Training and Doctrine Command
TSM	TRADOC system manager

APPENDIX B

LHX MANPRINT INFORMATION IN SPECIAL FORMAT
PRESCRIBED BY U.S. ARMY RESEARCH INSTITUTE

APPENDIX B

LHX MANPRINT INFORMATION IN SPECIAL FORMAT PRESCRIBED BY
U.S. ARMY RESEARCH INSTITUTE

IV. MANPRINT Issues/Concerns

A. Human Performance

1. Crew size

(a) Total system performance requirement: The SCAT will have a crew of one. (There are indications that a second crew member may be added.) The Utility, while operable by a single pilot, will have provision for a second crew member. The total system requirement will come from the HARDMAN analysis which already includes consideration of a second crew member in the SCAT.

(b) Human performance standards: These have not yet been separately codified from the system performance specifications. The latter are replete with implications for specific human performance having impact on skill requirements, training, and the soldier machine interface. The LHX Request for Proposal (RFP) Section 3.1.1 addresses soldier performance.

(c) Human error analysis: The RFP contains numerous requirements for surveys, analyses, demonstrations, simulations, tests, and validations involving human performance. It does not contain a specific requirement for human error analysis.

(d) Operator (pilot) workload: The Advanced Rotocraft Technology Integration (ARTI) program was to provide information on this topic. Results from the ARTI program are not available to the writer. Other analyses indicate that successful mission accomplishment by a single pilot SCAT is highly problematical especially under adverse weather, at night, and under degraded equipment conditions. The RFP Section 3.3.2.1 addresses pilot workload measurement.

(e) National Guard, Army Reserve Issues: No comment.

2. Maintenance/maintainer, civilian maintainer, supporter

   (a) Total system performance requirement: Will come from HARDMAN analysis.

   (b) Human performance standards: Not defined in documents reviewed by Allen Corporation.

   (c) Human error analysis: No requirement in RFP.

   (d) Impact of degraded built-in automated diagnostic equipment: Awareness of the potential problem is indicated in some documents. Measures to reduce potential impact are not evident in documents reviewed.

   (e) National Guard, Army Reserve Issues: No comment.

3. Environmental impacts on human performance and impact on designs. Address impact for active components and Army Reserve and National Guard. Do not duplicate information found elsewhere in this outline.

   (a) Physical environment: LHX is expected to operate throughout worldwide extremes of climate, weather, and other environmental factors. Environmental conditions are specified in RFP Section 2.3.2.10. Conditions covered are: temperatures, rain, snow load, sand and dust, icing conditions, salt spray, fungus, shock, and vibration. LHX is required to operate from 12-degree slope (RFP Section 2.3.2.1.3.4) and from shipboard in sea state 2 (RFP Section 2.3.2.1.3.5).

   (b) Operational environment: Under many flight and mission regimes, single SCAT pilot will be subjected to extremely high workloads. In some cases, e.g., night and adverse weather, workloads may exceed the capabilities of the best pilots. If a decision is made to add a second crewmember to SCAT, then LHX performance is more likely to be limited by equipment performance than by human performance. The internal environmental control system is specified in RFP Section 2.3.2.5.6. Heating, ventilation, defogging, and defrosting are provided for both SCAT and Utility. Cooling is provided for SCAT only. Oxygen and electricity are provided for med-evac patients. The potential threat exposure and protection required for LHX and crew are covered in RFP section 2.3.2.11. Noise limits are established by reference in RFP Section 2.3.2.16.5.

Maintenance and support personnel are expected to perform under environmental extremes and NBC conditions with protective clothing and/or NBC (MOPP level IV). (RFP Section 2.3.2.6.9). Auxiliary lighting is to be provided for flight line maintenance (RFP Section 2.3.2.7.2.1).

(c) Social environment: No comment.

B. Other MANPRINT Integration Issues: Not covered above or below: In general, MANPRINT issues appropriate to the RFP are well covered in the RFP. That document contains numerous requirements for analyses, surveys, mock-ups, simulations, demonstrations, and tests that include the "soldier-in-the-loop." The final success of the overall LHX hardware/soldier integration will be determined by the attention and weight given to MANPRINT concerns during the course of LHX development.

V. Specific MANPRINT Domain Issues

A. Manpower (Military and Civilians). The Extended HARDMAN Analysis conducted by Dynamics Research Corporation provided the following summary findings in a briefing at Fort Rucker, 7-8 October 1986:

1. 53% reduction in maintenance burden for LHX compared to predecessor system.

2. 53% reduction in maintenance manpower.

3. Shortfalls in MOS 66J, 68D, 68H, 68M, and 68F upon introduction of LHX.

4. 40% less MPT requirements for LHX than for predecessor systems.

B. Personnel (Military and Civilians). The HARDMAN analysis in paragraph A above addressed active Army military. The analysis was in progress for reserve components. National Guard and civilians were not mentioned. MOS consolidation is covered in the analysis as are shortfalls in specific MOS (A, 3) above. The analysis is based on postulated peacetime flying hours and does not include mobilization and wartime flying hours.

C. Training (Military and Civilians)

1. Training strategy: HARDMAN analysis (Paragraph A. above) uses traditional Army school strategy in estimating training manpower and personnel requirements. RFP Section 3.5 requires a System Approach to Training (SAT) and includes more than five pages specifying the training program required of the contractor. While the training strategy is not explicitly stated, items included and omitted in RFP Section 3.5 would support an inference that all training, including courseware materials and devices, for all personnel (operational,

maintenance, and support) is to be prepared by the contractor as an integrated training system (ITS) subject to government approval. The exceptions appear to be tactics and doctrine training and collective training limited to simulation. The words "Contractor Delivered" and "Turn Key" do not appear. Also, while the contractor is to prepare the training, it would appear that the Army will conduct the institutional and non-institutional training.

2. Training concept: (See paragraph C.1 above). RFP Section 3.5.3.4 addresses Embedded Training. The RFP contains no requirement for a two-pilot SCAT trainer. A New Equipment Training Program has been drafted for LHX but no New Equipment Training Team is planned for LHX. (Also see paragraph on Training under Light Helicopter System Description in main body of this report.)

3. The 29 training issues examined in this analysis are summarized in Tables 2 through 4 in the main body of this report and are listed in the data base print-outs in Appendix A.

D. Human Factors Engineering

1. Operator interface design/operator performance concerns: Table 1 in the main body of this report lists 19 issues judged to be the most critical to LHX issues. All of these are operator interface or operator performance issues. The complete list of LHX MANPRINT issues (Appendix A) repeats these 19 and lists 26 additional issues of lesser importance. See also Tables 2 through 4 of the main body of this report.

2. Maintainer interface design/maintainer performance concerns: Table 4, main body of this report, shows 12 issues in this category. See the issue lists in Appendix A for details on these as well as three issues affecting support personnel.

3. System integration and interraction interface design concerns. (See D.1 above).

E. System Safety. This domain was not part of this analytic effort. However, as noted elsewhere in this report, some of the issues included here under human factors engineering and health hazards might be construed as system safety issues.

F. Health Hazards. This analysis cataloged seven issues in this domain. (See Tables 2 through 4 and Appendix A.) Other analysts might categorize some of the human factors engineering issues as health hazard issues.